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Associations Between Maternal Personality and Parenting: A Multi-Informant Approach

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A thesis submitted in partial fulfillment of the requirements for the degree in Master of Science

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by

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Abstract

More is known about contextual factors associated with parenting than associations between intrinsic characteristics of parents, namely personality, and parenting. The current study investigated associations between parent personality and parenting behaviours with known relevance for child outcomes. A community sample of 385 mothers of preschool-aged children completed self-report measures of personality traits. Informant reports and observer ratings of maternal personality were also obtained. Parenting was assessed observationally during a mother-child interaction in the home. Personality traits were associated with both positive and negative parenting. The magnitude of these associations was generally modest, with the strongest effects emerging for the trait of agreeableness. In addition, neuroticism and agreeableness interacted to predict parental hostility. Informant reports and observer ratings showed incremental value beyond self-report in the prediction of parenting. These results indicate that parent personality traits are meaningfully associated with parenting behaviours and that multimethod approaches contribute unique information in predicting parenting.

Keywords: personality, parenting, observational, multi-informant

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Associations Between Maternal Personality and Parenting: A Multi-Informant Approach

Understanding the determinants of parenting is an important task for researchers interested in both adaptive and maladaptive child development. A survey of the extant literature reveals that there is a preponderance of information concerning contextual factors associated with parenting, such as parent education, employment, and marital status (Abidin, 1992; Kendler, Sham, & MacLean, 1997; Smith, 2010). Conversely, with the exception of the large literature on parental depression and parenting (Lovejoy, Graczyk, O'Hare, and Neuman, 2000; Wilson & Durbin, 2010), far less is known about associations between other intrinsic characteristics of parents, namely personality, and parenting (Belsky & Barends, 2002). Belsky (1984) was the first contemporary theorist to emphasize the importance of personality in the caregiving parents provide, placing it at the core of his process model of the determinants of parenting. However, this work did not spur as much research on parent personality as might have been expected.

Given that it is widely accepted that personality traits influence emotion, cognition, and behaviour in multiple domains of functioning (Connor-Smith & Flachsbart, 2007; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007), it is puzzling that so little is known about how parent personality shapes the way in which parents care for their children. As parenting has several critical direct and indirect effects on child development (Landry, Smith, & Swank, 2003; Lahey, 2011), understanding how personality affects parenting may be key to a more complete understanding of the constituents that form the bases for children's early environments. Considering the large body of work examining the relationship between depression and parenting, as well as the disparate but relevant research on the substantial overlap between personality and depression (both of which are reviewed in greater detail later on), it is important to investigate whether some of the variance in parenting assigned to

depression might actually be more clearly attributable to mothers' personality. A clearer understanding of this issue might allow for more precisely targeted parenting interventions, and thus potentially increase the likelihood of better child outcomes.

To address this gap in knowledge, the present study examined the joint roles of parent personality as well as depressive symptoms to investigate whether personality traits influence parenting after accounting for depression. To lay the groundwork for this study, the literature on the nature and structure of parenting is first reviewed. The extant literature on parent personality and caregiving, followed by the literature examining the relationship between depression and caregiving is then described. Research on the relationship between depression and personality is also reviewed.

Parenting Behaviours: Relevance for Child Outcomes

Before reviewing the current literature on personality and parenting associations, it is useful to review which parenting dimensions are most commonly examined in the field and how these are measured. Both the behaviours examined and the methodology used vary across studies; however, some consistencies have emerged in the literature, as Prinzie, Stams, Deković, Reijntjes, and Belsky (2009) described. To sum, three broad dimensions of parenting that map well onto parental behaviours are found in most studies. One such dimension is warmth (or responsiveness), which reflects the extent to which the parent is attuned to and supportive of their child. A parent high in warmth displays acceptance, support, affection, and positive affect toward their child. Further, low warmth is associated with hostility, a behaviour of importance in many studies given that it predicts poor child outcomes (Lipman, Boyle, Dooley, & Offord, 2002; Scaramella & Conger, 2003). Another dimension is that of behavioural control (or structure), which reflects parental expectations for child behaviour, limit-setting, appropriate supervision, and discipline when needed.

Sensitivity, which refers to well-timed and appropriate parental responses, is subsumed within behavioural control. The third dimension is labeled autonomy support, which reflects the extent to which the parent encourages active exploration, discovery, and formation of the child's own goals. Intrusiveness, a behaviour associated with low autonomy support, is often considered in studies of parenting given its association with negative child outcomes (Ipsa et al., 2004; Wood, 2006).

With respect to the literature associating parenting with child behaviour, certain parenting behaviours appear more relevant than others with regard to child outcomes (e.g., internalizing and externalizing psychopathology, achievement in school, social functioning). Behaviours characterized by the presence of negativity (e.g., hostility) and absence of positivity (e.g., detachment) appear particularly detrimental. For example, Knox, Burkhart, and Khuder (2011) found that parental hostility was a better predictor of current and future child aggression and conduct problems than parental depression. Similarly, Lipman and colleagues (2002) reported that hostile parenting significantly increased the risk of psychiatric problems and social impairment in children from single-parent families. In their review of the literature, McKee, Colletti, Rakow, Jones, and Forehand (2008) concluded that the weight of evidence indicates that hostile parenting behaviours are positively associated with both externalizing and internalizing symptoms in children and adolescents. As for detachment, Luyckx et al., (2011) plotted trajectories of maladaptive behaviours (alcohol use, cigarette use, antisocial behaviour, and internalizing symptoms) from Grade 1 through Grade 12, and found that children of uninvolved (detached) parents were characterized by the least optimal development. Again, this is consistent with the aggregate of previous findings that suggests that parental detachment or uninvolvement is strongly associated with both child and adolescent internalizing and externalizing symptoms (McKee et al., 2008).

Conversely, certain positive parenting practices, namely sensitivity (Mesman, van IJzendoorn, & Bakermans-Kranenburg, 2011; Tamis-LeMonda, Bornstein, & Baumwell, 2001) and supportiveness (Chazan-Cohen et al., 2009; Pettit, Bates, & Dodge, 1997; Stright, Herr, & Neitzel, 2009) seem to foster adaptive child development. Higher levels of sensitivity and responsiveness have been associated with earlier achievement of expressive language milestones (Tamis-LeMonda et al., 2001), as well as better attention regulation abilities in preschoolers (Davis, Harris, & Burns, 2010). Supportive parenting behaviours have been found to predict children's reasoning skills, conscientiousness, emotion regulation skills, and overall readiness for school (Stright et al., 2009; Chazan-Cohen et al., 2009). Thus, because of their critical role in child development and mental health, parental hostility, detachment, sensitivity, and supportive presence constitute the focus of the present investigation.

Parenting Behaviours: Methods of Assessment

With respect to assessment of parenting, researchers generally use either parent self-report measures or direct observation. There are many self-report measures designed to assess parenting practices (Smith, 2011), which have the benefits of low expense and the ability to survey parenting across a broad array of settings and contexts. However, research has shown that there can be a substantial gap in how parents report that they act and other measures of parenting behavior (Lovejoy, Weis, O'Hare, & Rubin, 1999). For example, Drake and Ginsburg (2011) found that compared to controls, anxious mothers reported being significantly less warm than non-anxious mothers; however, no differences in maternal warmth were found based on child reports and independent observer ratings. Observational methods, although more time-consuming, expensive, and limited in the sample of behaviour obtained, may circumvent some of the concerns associated with self-reported parenting. In

addition, structured observations of parenting have been shown to hold good predictive validity for child outcomes. Zaslow and colleagues (2006) conducted a four-year longitudinal study comparing maternal self-report to structured observational parenting measures in terms of predicting child cognitive and socioemotional functioning. While self-reported parenting predicted outcomes, observational measures were found to be the strongest and most consistent predictors of child outcomes such as cooperative behaviour and reading achievement. In sum, it seems clear that observational measures may better capture parenting behaviours with established relevance for child outcomes.

Big Five Personality Traits and Parenting

Given how much work in the area of developmental psychology focuses on the importance of parenting (Belsky & de Haan, 2011; Rueger, Katz, Risser, & Lovejoy, 2011), the relative lack of information about how parent personality is associated with parenting practices constitutes a major knowledge gap. Of the research that has been conducted, the majority has examined personality according to the Five-Factor Model (McCrae & John, 1992; Costa & McCrae, 1999). Although the literature is far from extensive, certain patterns have emerged in terms of how these five personality traits (i.e., neuroticism, extraversion, openness, agreeableness, conscientiousness) are related to parenting. Findings for each trait with regard to associations with parenting are reviewed below. Given that so few studies have examined parent personality and parenting, we included studies examining the personality correlates of parenting of infants, children, and adolescents in order to be comprehensive.

Neuroticism.

Neuroticism (also known as low emotional stability) is characterized by worry, anxiety, negative emotionality, and poor coping skills (Costa & McCrae, 1992a).

Neuroticism has been linked to maladaptive interpersonal relationships (McNulty, 2008), as well as poorer physical health and social adjustment (Lahey, 2009). Given the consistent associations between higher levels of neuroticism and poorer functioning across multiple domains, it is perhaps the easiest trait to make specific hypotheses with respect to its relationship to parenting behaviours, which may be why a disproportionate amount of the literature pertaining to personality and parenting has focused on this trait (Belsky & Barends, 2002). It appears clear that high levels of parental neuroticism are associated with poorer parenting practices, including less warmth, greater behavioural control, and decreased autonomy support (Prinzie et al., 2009). Kochanska, Clark, and Goldman (1997) reported that mothers high in self-reported neuroticism displayed significantly more observer-rated negative affect and less adaptive parenting over the course of interactions with their child, both at home and in a lab setting. Additionally, two recent studies of parents and their adolescent children showed that greater parental neuroticism was associated with increased strict control (Huver, Otten, de Vries, & Engel, 2010), as well as overreactive discipline (de Haan, Deković, & Prinzie, 2012). However, both of these studies relied exclusively on self-report measures of both personality and parenting, raising concerns about the possibility of monomethod bias increasing associations between parenting and personality.

Extraversion.

Extraverted individuals are sociable, optimistic, and person-oriented (Costa & McCrae, 1992a), all of which are attributes that that might lead one to believe that extraverted individuals make better parents (Belsky & Barends, 2002). Indeed, several empirical investigations support this prediction. Extraversion has been positively associated with warmth and behavioural control (Prinzie et al., 2009), as well as with nurturance (Metsäpelto & Pulkkinen, 2003), and has been negatively associated with both parental

overreactivity (i.e., the tendency to respond with anger, frustration, and irritation to problematic child behaviour; de Haan, Prinzie, & Deković, 2009) and power assertion (Kochanska, Aksan, Penney, & Boldt, 2007). Importantly, the relationships described above between extraversion and both positive and negative parenting behaviours appear to hold true from toddlerhood (Smith, Spinrad, Eisenberg, Gaertner, Popp, & Maxon, 2007) to adolescence (de Haan et al., 2009).

Openness.

Enjoying new experiences, being curious and imaginative, and having many interests are all aspects of this trait (Costa & McCrae, 1992a). Hypothesizing about how the facets of openness might be related to parenting is not entirely straightforward, given that this trait is less rooted in interpersonal behaviours relative to some of the other Big Five traits. A positive association with parenting behaviours such as sensitivity and supportiveness is plausible (e.g., parental intellectual curiosity might lead a parent to foster child creativity and curiosity, which takes place via positive parenting behaviours). However, less research has been conducted on openness than neuroticism and extraversion. What work has been done, according to the Prinzie et al. (2009) meta-analysis, suggests that openness is indeed positively associated with parental warmth and autonomy support. Openness has also been positively associated with demonstrations of symbolic play (Bornstein, Hahn, & Haynes, 2011) and positive emotional expressions (Smith et al., 2007) in mothers of toddlers. In addition, Metsäpelto and Pulkkinen (2003) reported that, in a sample of 172 parents, openness (assessed via self-report at age 33) was positively associated with nurturance and negatively associated with restrictiveness (assessed via self-report at age 36). However, it is important to note that parents in the study who were extremely high in openness were more likely to have an overall permissive parenting style. Permissive parenting is associated with

negative child outcomes (lower self-esteem and more depressive symptoms; Milevsky, Schlechter, Netter, & Keehn, 2007, and poor self-regulation; Patock-Peckham, Cheong, Balhorn, & Nagoshi, 2001). Thus, the relationship between openness and parenting is somewhat mixed.

Agreeableness.

Given that individuals scoring high on agreeableness tend to be good-natured, pleasant, and helpful (Costa & McCrae, 1992a), higher levels of this trait should likely be associated with more positive parenting. However, it could be that highly agreeable parents might be poor disciplinarians, due to their tendency to want to maintain pleasant interpersonal relations with their children. Although the literature addressing this question is surprisingly small, the results of most studies support the first hypothesis (i.e., agreeableness is positively associated with positive parenting). Prinzie et al. (2009) reported that agreeableness was significantly positively associated with parental warmth, behavioural control, and autonomy support. Also, Coplan, Reichel, and Rowan (2009) reported that in middle childhood, self-reported maternal agreeableness was negatively associated with self-reported harsh and coercive parenting, especially among mothers of emotionally dysregulated children. In a sample of mothers and toddlers, Smith and colleagues (2007) found that self-reported maternal agreeableness was positively associated with self-reported positive emotional expression and observer-rated sensitivity at a three different time points (18, 24, and 30 months). In samples of adolescents, parental agreeableness has also been associated with more warmth and less overreactivity (de Haan et al., 2009), as well as higher levels of supportiveness (Huver et al., 2010). Overall, a consistent picture has emerged regardless of child age, which is that greater agreeableness is associated with positive parenting behaviours. However, considering that the number of studies examining this

question using independent measures of parenting and parent personality is quite small, further investigation of this question is needed.

Conscientiousness.

Also surprisingly, conscientiousness, the tendency to be well-organized and goal-driven (Costa & McCrae, 1992a), has not received much attention in terms of its relationship to parenting. Furthermore, it is not immediately obvious whether higher levels of the trait would necessarily be associated with better parenting practices. More specifically, a parent who is very organized and achievement-oriented might have a comparably, albeit distinct, detrimental parenting style relative to a parent who is overly carefree and disorganized. This issue is also related to how conscientiousness is operationalized in questionnaire measures (Roberts, Chernyshenko, Stark, & Goldberg, 2005); that is, questionnaires vary in the extent to which they capture maladaptive extremes of this trait, although most emphasize adaptive aspects of conscientiousness (Haigler & Widiger, 2001; Samuel & Gore, 2012). Nonetheless, the result that has emerged most consistently is that conscientiousness is positively associated with warmth, behavioural control, and autonomy support (Prinzie et al., 2009). For example, Smith and colleagues (2007) reported that maternal conscientiousness was significantly positively associated with maternal self-reported positive emotional expressiveness in mothers of 18-month-old toddlers, which, in turn, was associated with observer-rated maternal sensitivity when the toddlers were 30 months old. Interestingly, in a sample of parents and their adolescent children, conscientiousness was found to be unrelated to both parental warmth and overreactivity (de Haan et al., 2009). Huver and colleagues (2010) replicated this finding by reporting that conscientiousness was not related to support, strict control, or any parenting styles (authoritarian, indulgent, uninvolved) in their sample of parents and adolescents. This suggests that the association between conscientiousness and

parenting may only be evident in considering the caregiving of younger children.

Depression and Parenting

In stark contrast to the modest literature relating parent personality to parenting, there is a wealth of work on associations between maternal depression and parenting (Lovejoy et al., 2000). Depression is a very serious and debilitating disorder (Murray & Lopez, 1997), affecting multiple domains of functioning (e.g., job performance; Adler, McLaughlin, Rogers, Chang, Lapitsky, & Lerner, 2006, and marital dynamics; Rehman, Gollan, & Mortimer, 2008). In particular, depression affects parenting practices and behaviours, which in turn affect child development (Ewell Foster, Garber, & Durlak, 2008; Goodman, Rouse, Connell, Robbins Broth, Hall, & Heyward, 2010).

Toward the goal of synthesizing findings regarding depression and parenting across studies, Lovejoy and colleagues (2000) conducted a meta-analysis of 46 observational studies examining the effect of maternal depression on parenting, identifying the three most common domains of parenting behaviour that have been assessed in relevant studies: negative/coercive behaviours, disengagement, and positive behaviours. While these three broad domains are similar to those used in the Prinzie et al. (2009) meta-analysis of parent personality and parenting, they do not perfectly map onto each other, making it somewhat difficult to synthesize findings across these different fields. Lovejoy et al. found that negative parenting behaviours, such as hostility and irritability, were positively related to parental depression, with statistical analyses yielding a moderate effect size (d = .40). A slightly smaller effect was found for disengaged parenting behaviour (d = .29), which was also positively related to depression. Positive parenting behaviours, such as affectionate contact and expression of positive affect, were negatively related to depression, with statistical analyses yielding a small effect size (d = -.16). Maternal depression therefore appears to be

most strongly associated with hostility and irritability toward children, in addition to disengagement and decreased praise, support, and affection.

It is important to note that the effect for negative behaviours was significantly larger in samples of currently depressed mothers than in studies that included mothers with both current or past history of depression. Although this suggests that the effects of depression on parenting are strongest when mothers are currently depressed, mothers with a history of depression still displayed more negative behaviours than never-disordered mothers during interactions with their child (Lovejoy et al., 2000). Moreover, even in nonclinical samples, higher levels of maternal depressive symptoms have been associated with negative parenting behaviours (Leadbeater, Bishop, & Raver, 1996; McLearn, Minkovitz, Strobino, Marks, & Hou, 2006). For example, Dix, Gershoff, Meunier, and Miller (2004) reported in a nonclinical sample that, as maternal depressive symptoms increased, mothers displayed less supportive behaviour during an interaction with their child. This replicated a previous finding by Albright and Tanis-LeMonda (2002) whereby greater depressive symptoms were associated with less maternal sensitivity, engagement, affection, and more rigidity during mother-child interactions observed in the home. Thus, it appears that even subthreshold depressive symptoms are associated with parenting practices with clear relevance for child outcomes.

Studies conducted since the publication of the Lovejoy et al. (2000) meta-analysis have largely supported the findings discussed above. Leckman-Westin, Cohen, and Stueve (2009) found that self-reported maternal depressive symptomatology was related to observed maternal negativity and less responsiveness/emotionality. These negative maternal behaviours were associated with child behaviour problems, both at the time of initial assessment (toddlerhood) and at the decade-later follow-up assessment. Similarly, Ewell

Foster et al. (2008) found that mothers, both currently depressed and with a history of depression, displayed significantly more negative behaviours and fewer positive behaviours while working on a problem-solving task with their adolescent child than did never-depressed mothers. In sum, maternal depression, even when considering past episodes and subthreshold levels of symptoms, is associated with negative parenting in fairly consistent ways.

Depression and Personality

Similar to the extensive literature examining the relationship between maternal depression and parenting practices, a sizeable literature documents the relationships between personality traits and depression, the most notable being the association between neuroticism and depression (Klein, Kotov, & Bufferd, 2011; Widiger & Trull, 1992). Clark, Watson, and Mineka (1994), in their seminal tripartite model, posited that high levels of negative emotionality (highly related to neuroticism, but not entirely overlapping) result in vulnerability to depression and anxiety. They also suggested that low positive emotionality (highly related to extraversion, but not entirely overlapping) is a risk factor specific to depression. Subsequent research has largely but not entirely supported these assertions. Using a longitudinal, population-based twin study design that included over 20,000 individuals, Kendler, Gatz, Gardner, and Peterson (2006) found that self-reported levels of neuroticism strongly predicted lifetime onset of major depressive disorder (MDD). Levels of extraversion, however, were only weakly related to depression, and any effects disappeared once controlling for neuroticism. Similarly, in a cross-sectional, population-based study of 441 individuals, Jylhä and Isometsä (2006) found that self-reported neuroticism significantly positively correlated with symptoms of depression and anxiety. However, in contrast to Kendler et al., they also found that extraversion was significantly negatively correlated with

symptoms of depression and anxiety. Weber and colleagues (2011) reported that, compared to healthy controls, acutely depressed outpatients had higher levels of neuroticism and lower levels of not only extraversion, but agreeableness, conscientiousness, and openness as well. Moreover, these results emerged across age groups (young: 25-50 years, old: 60-85 years). Given that there is a normative decline in neuroticism and increase in agreeableness and conscientiousness with age (McCrae et al., 1999), it is interesting that the associations between these traits and depression were present regardless of age. Kotov, Gamez, Schmidt, and Watson (2010) reviewed 175 studies in their meta-analysis of associations between the Big Five traits and anxiety, depressive, and substance-use disorders. They reported that all disorder groups, including depression, exhibited high levels of neuroticism and low levels of conscientiousness. Low extraversion was associated with many of the disorders, most notably with dysthymic disorder. Levels of agreeableness and openness were generally not significantly related to any diagnostic groups, including depression.

In summary, there exists a large literature examining the relationship between depression and parenting, as well as the relationship between depression and personality. However, these two lines of inquiry have proceeded largely independently of each other. In other words, few studies have taken maternal personality into account when examining the impact of maternal depression on parenting. One such study that did broadly address this issue was conducted by Conroy, Marks, Schacht, Davies, and Moran (2010), in which they carried out a home observation of mothers and their infants. Mothers belonged to one of four groups: control, depression only, personality disorder (PD; all clusters) only, and comorbid depression and PD. They reported that mothers who were depressed and had a PD exhibited poorer infant care practices and displayed less involvement than mothers in the other three groups. Thus, it would seem that both poor personality functioning and depression affect

maternal parenting behaviour in a particularly deleterious manner. However, the very limited amount of research that has examined both depression and personality means that the question of whether more longstanding personality traits influence parenting after accounting for depression is still open. Stated differently, is it depression per se that is related to negative parenting, or is it the personality profile generally associated with depression that is related to negative parenting? It is important to determine whether depression drives poor parenting versus personality traits increasing risk for both depression and negative parenting, as these two scenarios have rather different implications as far as preventative measures aimed at preventing negative child outcomes are concerned.

Informant and Observer Reports of Personality

Although the benefits of a multi-informant approach in research on personality are widely acknowledged (Vazire, 2006; Vazire & Mehl, 2008), one of the major issues that has plagued the field is the reliance on self-report as the sole source of information. Using only self-report information seems to be especially problematic with regard to more extreme personality variants or personality pathology, given that other methods of personality assessment (i.e., informant, observer) show only moderate agreement with self-report, and provide unique information in predicting important outcomes (Achenbach, 2006; Oltmanns & Turkheimer, 2009). Furthermore, individuals who exhibit relatively extreme aspects of personality may have poor insight into their own traits (Klonsky, Oltmanns, & Turkheimer, 2002). Ready, Watson, and Clark (2002) investigated the incremental validity of informant reports of personality in predicting psychiatric patient substance use, social behaviours, and psychological distress, finding that informant reports accounted for an additional 9% of the variance in social behaviour. They also reported that informant reports accounted for an additional 23% of the variance in psychological distress at one-year follow-up. Similarly,

Klein (2003) found that informant data on PDs were generally the only unique predictors of social adjustment in a 7.5-year follow-up of depressed outpatients. It was also recently reported that spouse ratings of personality have incremental validity beyond self-reports in predicting marital quality and depressive symptoms (Cundiff, Smith, & Frandsen, 2011).

Given that informants are often well-acquainted with their targets (e.g., family member, friend, etc.) in most studies, it is not surprising that they are able to provide valid information on targets' personality. However, informants have some limitations as a source of information. For example, informants tend to provide overly positive information because of liking the person they are reporting about ('letter of recommendation' effect; Leising, Erbs, & Fritz, 2010). This suggests the added benefit of more objective measures of informant personality, such as observer ratings.

Observers (i.e., relative strangers who view a sample of the target's behaviour) are able to provide valid information on personality as well (Borkenau & Liebler, 1992), even when the sample of behaviour observed is only a few minutes in duration (Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004), as shown by a small literature demonstrating the predictive validity of observer ratings. For example, Mount, Barrick, and Strauss (1994) reported on a study of sales representatives and customers and found that for three of the Big Five traits (extraversion, agreeableness, and conscientiousness), customer ratings of personality accounted for 8-10% of the variance beyond self-report (in this case, the outcome variable was job performance ratings). Connolly, Kavanagh, Viswesvaran (2007) conducted a meta-analysis of the convergent validity between self and observer ratings of personality Although there was substantial overlap between self and observer ratings on all of the Big Five traits, the information was far from redundant given that observer ratings also accounted for a large proportion of unique variance in job performance ratings. An even more recent

meta-analysis carried out by Connelly and Ones (2010) found that observer ratings were very strong predictors of behaviour. When predicting academic achievement and job performance, observer ratings showed predictive validity both greater than and incremental to self-report. Similarly, Durbin, Schalet, Hayden, Simpson, and Jordan (2009) reported that observer ratings of personality based on behaviour during structured laboratory tasks predicted risk for psychopathology, even after accounting for self-reported personality. Thus, observer ratings of personality provide useful incremental validity with regard to the prediction of important outcomes. Despite the well-documented utility of observer ratings, to our knowledge, there are no studies in which observer ratings of parent personality have been collected.

Current Study

The current study was designed to address several distinct but related issues. First, we aimed to verify if the relationships between parent personality traits (measured following the Big Five model) and parenting previously reported in the literature were present in our large, community-based sample, extending this work by using informant and observer reports of personality in addition to self-report. In addition, although the Big Five traits are robust and show predictive validity for an array of outcomes (Costa & McCrae, 1999), the focus on relatively narrow-range normative traits might show weaker predictive validity for more maladaptive parenting behaviours. Therefore, we also examined associations between parenting and a measure of personality developed to tap more extreme aspects of personality, the Schedule for Nonadaptive and Adaptive Personality (SNAP; Harlan & Clark, 1999). The self-report and informant versions of this measure were used, as informant reports may be especially useful for collecting information concerning maladaptive aspects of personality (Oltmanns & Turkheimer, 2009). The use of a multi-informant approach, particularly the use of informant reports and observer ratings, as well as the inclusion of a measure of extreme

aspects of personality represent novel contributions to the body of research examining parent personality and parenting.

Second, we aimed to identify the unique contribution of maternal personality and depressive symptoms to parenting. As explained earlier, previous research has failed to measure both parent personality *and* depressive symptoms within the same study, despite the fact that it is warranted for theoretical reasons (Belsky & Barends, 2002). We therefore tested multivariate models including both depressive symptoms and parent personality. Given the existing literature (de Haan et al., 2012, Huver et al., 2010, Prinzie et al., 2009), we made the strongest hypotheses with regard to the relationship between neuroticism and parenting. We expected neuroticism to be positively associated with hostility and detachment, and to be negatively associated with sensitivity and supportive presence. Consistent with past findings (Metsäpelto & Pulkkinen, 2003; Kochanska et al., 2007), the opposite pattern of results was hypothesized for extraversion. Although there was little previous work to draw upon for agreeableness, we hypothesized that agreeableness would be positively associated with positive parenting behaviours and negatively associated with negative parenting behaviours. Similarly, hypotheses about openness and conscientiousness were kept very general. Both of these traits were expected to be significantly associated with parenting, although no direction of association was specified. Whether these associations would remain after controlling for the influence of depression was unclear, although in a community sample with generally low levels of depressive symptoms, we expected that personality would contribute unique variance in predicting parenting beyond symptoms.

Method

Participants

Participants were 385 mothers from a larger sample of 410 primary caregivers who were participating, along with their child, in a larger, longitudinal study of child personality. Mothers were the focus of this study because they were children's primary caregivers in almost all families in our study, and because study constraints precluding obtaining extensive observational measures of parenting on both caregivers. For the larger study, families were eligible to participate if the child was between the ages of 3 years, 0 months and 3 years, 11 months at the time of recruitment, had no significant medical or psychological conditions, and if the primary caregiver was English-speaking. Mean age of the mothers at the time of the baseline assessment was 33.3 years (*SD* = 4.6). Mothers were primarily Caucasian (N = 331; 85.9%), and 336 (87.2%) indicated that they were either married or living with their significant other. Family income was measured on a 5-point Likert scale and varied widely (4.3% < $20,000; 11.6% $20,000-$40,000; 23.7% $40,001-$70,000; 29.4% $70,001-$100,000; 31.0% > $100,001). Forty-nine percent of mothers had at least a bachelor's degree, and 63.6% reported working outside the home.

Maternal Personality Measures

Mothers completed the NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992b), a 60-item measure of the five factors of personality. Using a five-point Likert scale (ranging from *definitely true* to *definitely false*), respondents rate how applicable each item is to their typical behavior. Items include statements such as "I am not a worrier" and "I am a cheerful, high-spirited person." The NEO-FFI shows very good two-week test-retest reliability, with correlations ranging from .86 to .90 across the five scales (Robins, Fraley, Roberts, & Trzesniewski, 2001). The five factors and their internal consistencies analyses in our sample are as follows: neuroticism (α = .86), extraversion (α = .80), openness (α = .70),

conscientiousness (α = .86), and agreeableness (α = .75). These coefficients are comparable to the range of .68 to .86 reported by Costa and McCrae (1992b).

Mothers also completed the short form of the Schedule for Nonadaptive and Adaptive Personality Self-Description Rating Form (SNAP-SRF; Harlan & Clark, 1999). The SNAP-SRF is a 33-item measure of adaptive and maladaptive personality dimensions. Items consist of a description of individuals that are low versus high on the trait of interest, and respondents are asked to rate how much they resemble the low- or high-end description. The SNAP-SRF has 12 scales[1] and three higher-order dimensions (negative temperament, positive temperament, and disinhibition). However, for our investigation, to reduce the number of analyses conducted, we chose to examine the three SNAP scales with the greatest likely relevance for parenting: aggression (α = .28), detachment (α = .66), and impulsivity (α = .57). While these internal consistencies are lower than desirable, the SNAP short form scales are comprised of only 2-3 items; thus, low alphas are somewhat expected. Moreover, they are comparable to those reported by Harlan and Clark (1999) in their report of the development, reliability, and validity of the SNAP.

To obtain measures of personality from informants who knew the mothers well, informant versions of the NEO-FFI (Form R) and SNAP (Other-Description Rating Form) were provided by the child's secondary caregiver (child's biological father, N = 342, 97.2%; other secondary caregiver, N = 10, 2.8%). Informant reports were not available for 33 mothers due to the lack of a secondary caregiver (i.e., mothers were single parents). The secondary caregiver completed the NEO-FFI (Form R). The informant version is identical to the self-report version previously described; however, respondents are asked to rate how applicable each item is to the target rather than themselves. Internal consistency analyses in

1 The 12 SNAP-SRF scales are as follows: mistrust, manipulativeness, aggression, self-harm, dependency, entitlement, exhibitionism, detachment, impulsivity, propriety, workaholism, and eccentric perceptions.

our sample yielded the following: neuroticism (α = .89), extraversion (α = .82), openness (α = .67), conscientiousness (α = .89), and agreeableness (α = .82). Secondary caregivers also completed the Schedule for Nonadaptive and Adaptive Personality Other-Description Rating Form (SNAP-ORF; Harlan & Clark, 1999). As with the NEO-FFI, the informant version of the SNAP is identical to the self-report version, with respondents rating how applicable each item is to the target. The internal consistencies in our sample for the SNAP-ORF are as follows: aggression (α = .62), detachment (α = .74), and impulsivity (α = .47).

Observer ratings of personality were obtained using the Mini-Markers coding system (Saucier, 1994). Trained undergraduate research assistants made judgments of each mother's personality by watching approximately 25 to 30 minutes of video consisting of parenting tasks, one of which is described in a section below, as it formed the basis for our parenting task ratings, and two others not described in detail here as they occurred during a separate laboratory visit not considered in the present manuscript. Maternal personality ratings and observational parenting ratings were not made by the same raters. Based on video recordings, raters assigned values ranging from 1 to 9 (*extremely inaccurate* to *extremely accurate*) for each of the 40 Mini-Marker adjectives. Examples of adjectives include harsh, shy, cold, talkative, moody, and creative. The ratings were used to form 5 scales reflecting the Big Five personality traits, with internal consistencies as follows: extraversion (α = .93), agreeableness (α = .92), conscientiousness (α = .87), openness (α = .85), and emotional stability (α = .81). The emotional stability scale was reverse-coded so that it would share the same directionality as our other measures of neuroticism (i.e., higher scores would indicate greater neuroticism). This scale is accordingly referred to as observer-rated neuroticism throughout.

Measure of Depressive Symptoms

Mothers completed the Inventory to Diagnose Depression (IDD; Zimmerman &

Coryell, 1987), a 22-item self-report measure of current depressive symptoms. The IDD has established reliability and validity, and shows high correlations with other measures designed to assess depression (Hodgins, Dufour, & Armstrong, 2000). Items on the IDD are rated on a scale of 0 to 4, with scores of 0 or 1 indicating no or subthreshold symptoms, and scores of 2 or greater indicating the presence of a symptom and its severity. Scores in the present sample ranged from 0 to 56 (M = 9.2, SD = 7.1), which is comparable to IDD scores obtained in other community samples (Ackerson, Dick, Manson, & Baron, 1990; Zimmerman & Coryell, 1987). The clinical cut-off score for the IDD is 23 (Zimmerman & Coryell, 1987); thus, the mean of 9.2 is within the nonclinical range, as would be expected in a community sample. The IDD had high internal consistency in our sample, with reliability analyses yielding an alpha coefficient of .86 (similar to an alpha coefficient of .92 reported by Zimmerman & Coryell, 1987).

Observational Measure of Parenting

Observational measures of parenting collected during a home visit were available for 383[2] of the 385 mothers. The task used to elicit parenting styles (referred to as the three bag task) was based on a task developed by the National Institute of Child Health and Human Development (1997), modified by Ipsa and colleagues (Ipsa et al., 2004), and was designed to elicit parent-child interactions during low-stress circumstances. Mother and child were instructed to play together with three bags of toys. The first bag contained a book, the second contained a set of toy kitchen items, and the third bag contained a farmhouse play set. The pair was told to play with the toys in order and to put away one set of toys before moving on to the next set. This free play paradigm lasted approximately 10 minutes.

Video recordings of the task were coded by trained graduate and undergraduate raters

2 Due to technical problems, recordings of two families were unavailable for coding.

using a coding manual based on the Teaching Tasks coding manual (Weinfield, Egeland, & Ogawa, 1997) and the Qualitative Ratings for Parent-Child Interactions scale (Cox & Crnic, 2003). Raters were trained to an intraclass correlation (ICC) of .80 with a master coder. Once interrater reliability was established, intermittent reliability checks were performed on 15% of all recordings; the average ICC for the three bag task was .86. Coders periodically met and reviewed recordings together to prevent rater drift. A total of 18 caregiver and child behaviors were coded from the three bag task (see Appendix A), some of which capture child behavior. For the purposes of the current study, the four parenting scales with greatest likely relevance for child outcomes, based on the preceding literature review, were used. The scales were as follows: maternal hostility, maternal detachment, maternal sensitivity, and maternal supportive presence.

Results

Cross-Method Agreement on Personality

Bivariate correlations between self-reported, informant-reported, and observer-rated Big Five personality are given in Table 1. Recall that self- and informant-reports were obtained with the NEO-FFI self- and informant-report versions, which use the exact same items to generate personality scale scores whereas the observer ratings were obtained using the Mini-Markers rating form; this likely contributed to the strong convergence found between self- and informant-report. Correlations between self- and informant-reports for the same trait ranged from .44 (agreeableness) to .56 (conscientiousness), which are similar to the magnitudes reported by Durbin et al. (2009). The only significant association between self-report and observer ratings for the same trait was for agreeableness; likewise, informant-report and observer ratings of agreeableness were also significantly correlated. Thus, the only

Table 1

Bivariate correlations among self-reported, informant-reported, and observer-rated Big Five personality traits

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Self-reported N	-	-.36***	-.02	-.34***	-.33***	.51***	-.34***	.01	-.10	-.21***	.06	.01	-.04	-.07	-.06
2. Self-reported E		-	.18***	.22***	.21***	-.18***	.55***	.03	.05	.02	.03	.08	.03	.00	.06
3. Self-reported O			-	.00	-.10	-.04	.06	.50***	-.06	-.12*	.07	-.02	-.02	-.07	-.03
4. Self-reported A				-	.22***	-.08	.16**	-.03	.44***	.07	-.10	-.04	.09	.12*	.10*
5. Self-reported C					-	-.11*	.10	-.10	-.03	.56***	.04	.03	.04	.01	.05
6. Informant-reported N						-	-.48***	-.15**	-.36***	-.34***	-.04	-.02	-.07	-.05	-.12*
7. Informant-reported E							-	.23***	.32***	.25***	.06	.06	-.02	.04	.05
8. Informant-reported O								-	.15**	.04	.10	-.04	-.04	-.10	-.07
9. Informant-reported A									-	.27***	-.13*	.03	.16**	.21***	.17**
10. Informant-reported C										-	-.03	.05	.07	.13*	.10
11. Observer-rated N											-	-.28***	-.34***	-.64***	-.28***
12. Observer-rated E												-	.60***	.41***	.30***
13. Observer-rated O													-	.48***	.51***
14. Observer-rated A														-	.43***
15. Observer-rated C															-
Mean	19.14	30.11	27.22	35.11	35.33	21.02	29.71	24.77	33.63	34.61	1.66	6.13	5.70	7.25	6.64
Standard deviation	7.77	6.27	5.81	5.28	6.48	8.68	6.72	5.57	6.30	7.44	.94	1.48	1.04	.91	1.03

Note. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness

*$p < .05$, **$p < .01$, ***$p < .001$.

trait for which significant associations were found across all three methods was agreeableness. There were also numerous significant associations across methods for different traits (e.g., self-reported neuroticism and informant-reported extraversion were negatively correlated); however, such associations are not the focus of the present investigation and will thus not be discussed further here.

Correlations Between Self-Reported, Informant-Reported, and Observer-Rated Big Five Personality and Parenting

Bivariate correlations between self-reported, informant-reported, and observer-rated Big Five personality and parenting are in Table 2. Self-reported neuroticism and self-reported extraversion were significantly correlated with detachment (positively and negatively, respectively), although the magnitude of these associations was quite small. Self-reported openness and conscientiousness were not significantly related to any parenting behaviours. The strongest relationships emerged between self-reported agreeableness and parenting; agreeableness was significantly positively correlated with sensitivity and supportive presence and significantly negatively correlated with hostility and detachment. Informant-reported neuroticism was not associated with any of the parenting behaviours, and informant-reported extraversion was significantly negatively associated only with detachment (Table 3). As was the case with self-report, the strongest relationships were found with the trait of agreeableness; identical to the results for self-reported personality, it was significantly positively correlated with sensitivity and supportive presence and significantly negatively correlated with hostility and detachment. A significant negative correlation was found between informant-reported openness and detachment. Finally, informant-reported conscientiousness correlated positively with supportive presence and negatively with hostility and detachment.

Table 2
Bivariate correlations among self-reported Big Five personality traits, observed parenting, and depressive symptoms

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Maternal sensitivity	-	-.59***	.73***	-.48***	-.01	-.03	.01	.17**	.01	-.05
2. Maternal detachment		-	-.61***	.38***	.11*	-.10*	-.01	-.11*	-.06	.11*
3. Maternal supportiveness			-	-.46***	-.04	-.02	-.00	.14**	.03	-.07
4. Maternal hostility				-	.09	-.01	.03	-.16**	-.02	.02
5. Neuroticism					-	-.36***	-.02	-.34***	-.33***	.61***
6. Extraversion						-	.18***	.22***	.21***	-.25***
7. Openness							-	.00	-.10	.04
8. Agreeableness								-	.22***	-.28***
9. Conscientiousness									-	-.17**
10. IDD										-
Mean	3.74	1.60	5.03	1.27	19.14	30.11	27.22	35.11	35.33	9.2
Standard deviation	.79	.86	1.25	.63	7.77	6.27	5.81	5.28	6.48	7.1

Note. IDD = Inventory to Diagnose Depression

*$p < .05$, **$p < .01$, ***$p < .001$.

Table 3
Bivariate correlations among informant-reported Big Five personality traits, observed parenting, and depressive symptoms

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Maternal sensitivity	-	-.59***	.73***	-.48***	-.00	-.05	.05	.24***	.09	-.05
2. Maternal detachment		-	-.61***	.38***	.07	-.14*	-.11*	-.19***	-.13*	.11*
3. Maternal supportiveness			-	-.46***	-.01	.01	.10	.24***	.12*	-.07
4. Maternal hostility				-	.01	.02	.04	-.19***	-.15**	.02
5. Neuroticism					-	-.48***	-.15**	-.36***	-.34***	.41***
6. Extraversion						-	.23***	.32***	.25***	-.24***
7. Openness							-	.15**	.04	.01
8. Agreeableness								-	.27***	-.14**
9. Conscientiousness									-	-.11*
10. IDD										-
Mean	3.74	1.60	5.03	1.27	21.02	29.71	24.77	33.63	34.61	9.2
Standard deviation	.79	.86	1.25	.63	8.68	6.72	5.57	6.30	7.44	7.1

Note. IDD = Inventory to Diagnose Depression

*$p < .05$, **$p < .01$, ***$p < .001$.

Observer-rated extraversion, openness, agreeableness, and conscientiousness were all significantly, positively correlated with sensitivity and supportive presence and significantly, negatively correlated with hostility and detachment (Table 4; with the exception of extraversion and hostility, *ns*). Observer-rated neuroticism yielded the opposite pattern: it correlated negatively with sensitivity and supportive presence and positively with hostility and detachment.

In sum, two patterns emerged across all methods of measuring personality: agreeableness tended to be significantly correlated with all parenting behaviours (negatively with hostility and detachment and positively with sensitivity and supportive presence). Also, parental detachment tended to be significantly associated with all personality traits (negatively with extraversion, openness, agreeableness, and conscientiousness and positively with neuroticism).

SNAP Personality Traits: Self and Informant Agreement and Correlations with Parenting

Correlations between self- and informant-rated personality obtained with the SNAP (Table 5) show that there was good convergence for the traits of aggression, detachment, and impulsivity. While self-reported aggression, detachment, and impulsivity were not significantly correlated with any of the parenting behaviours, significant correlations were found for informant reports of all three SNAP traits examined. Informant-reported aggression correlated positively with hostility, and informant-reported detachment correlated positively with observed detachment. Informant-reported impulsivity correlated negatively with sensitivity and positively with hostility and detachment.

Correlations Between Self-Reported Depressive Symptoms, Personality, and Parenting

Correlations between all measures of personality and self-reported depressive

Table 4
Bivariate correlations among observer-rated Big Five personality traits, observed parenting, and depressive symptoms

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Maternal sensitivity	-	-.59***	.73***	-.48***	-.25***	.24***	.33***	.36***	.22***	-.05
2. Maternal detachment		-	-.61***	.38***	.31***	-.36***	-.31***	-.39***	-.25***	.11*
3. Maternal supportiveness			-	-.46***	-.26***	.29***	.29***	.40***	.25***	-.07
4. Maternal hostility				-	.33***	-.02	-.18***	-.35***	-.13**	.02
5. Neuroticism					-	-.28***	-.34***	-.64***	-.27***	.12*
6. Extraversion						-	.60***	.41***	.30***	-.10*
7. Openness							-	.48***	.51***	-.11*
8. Agreeableness								-	.43***	-.12*
9. Conscientiousness									-	-.05
10. IDD										-
Mean	3.74	1.60	5.03	1.27	1.66	6.13	5.70	7.25	6.64	9.2
Standard deviation	.79	.86	1.25	.63	.94	1.48	1.04	.91	1.03	7.1

Note. IDD = Inventory to Diagnose Depression

*$p < .05$, **$p < .01$, ***$p < .001$.

Table 5
Bivariate correlations among self- and informant- reported SNAP personality traits, observed parenting, and depressive symptoms

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Maternal sensitivity	-	-.59***	.73***	-.48***	-.02	-.01	.01	-.09	-.06	-.12*	-.05
2. Maternal detachment		-	-.61***	.38***	.00	.09	-.00	.09	.14**	.12*	.11*
3. Maternal supportiveness			-	-.46***	.02	-.01	.01	-.02	-.06	-.10	-.07
4. Maternal hostility				-	.08	-.01	-.01	.13*	-.01	.15**	.02
5. Self-reported AG					-	.09	.16**	.42***	.02	.13*	.24***
6. Self-reported DT						-	-.15**	.10	.55***	-.07	.21***
7. Self-reported IM							-	.08	-.14*	.44***	.13*
8. Informant-reported AG								-	.18***	.26***	.16**
9. Informant-reported DT									-	-.03	.10
10. Informant-reported IM										-	.09
11. IDD											-
Mean	3.74	1.60	5.03	1.27	2.21	2.55	2.48	2.29	2.67	2.59	9.2
Standard deviation	.79	.86	1.25	.63	.99	1.01	1.01	1.01	1.13	1.05	7.1

Note. AG = aggression, DT = detachment, IDD = Inventory to Diagnose Depression, IM = impulsivity

*$p < .05$, **$p < .01$, ***$p < .001$.

symptoms are provided in Tables 2, 3, 4, and 5. Self-reported neuroticism was significantly positively correlated with depressive symptoms, and self-reported extraversion, agreeableness, and conscientiousness were significantly negatively correlated with depressive symptoms. Identical findings were found for informant-reported personality. Results were almost identical for observer-rated personality, with one exception: openness was found to be significantly negatively correlated with depressive symptoms, and conscientiousness was not. As for the SNAP, self-reported aggression, detachment, and impulsivity were all significantly positively correlated with depressive symptoms. A different pattern emerged for informant-reported traits, where only aggression significantly positively correlated with depressive symptoms. Correlations between self-reported depressive symptoms and parenting behaviours are also given in the aforementioned tables. Surprisingly, detachment was the only parenting behaviour to correlate significantly with self-reported depressive symptoms. While both sensitivity and supportive presence were negatively correlated with self-reported depressive symptoms, neither achieved statistical significance (all *p*s > .15) despite our large sample size.

Regressions Using Personality to Predict Parenting Behaviours

Regressions were used to identify significant personality predictors of parenting behaviours after controlling for depressive symptoms. All models were constructed in the same manner: depressive symptoms were entered in Step 1, followed by self-reported, informant-reported, and observer-rated personality ratings of the same trait (e.g., neuroticism) in the subsequent steps. Variables were entered in this order so as to be able to observe the overall change in variance for each step when adding more expensive and difficult to collect measures of personality (i.e., informant reports and observer ratings), thereby identifying the unique variance accounted for by each method of personality

reporting (self, informant, observed) after accounting for any variance related to depressive symptoms. Separate regressions were conducted using each of the Big Five personality traits and for the three SNAP traits as the predictor variables and using the four parenting behaviours as the outcome variables. This yielded a total of 32 regression analyses. Although this is a large number of analyses to conduct, due to the exploratory and novel nature of our study, corrections for multiple tests were not applied. Analyses for which no predictors were significant are described in the text below but are not presented in table format to conserve space.

Hostility.

Self-reported and observer-rated neuroticism, but not informant-reported neuroticism, were significant predictors of hostility (Table 6). Both of these effects were in the expected direction, that is, neuroticism was positively associated with hostility. Self-reported neuroticism accounted for 1.3% of the variance in hostility, while observer-rated neuroticism accounted for 7.7% of the variance. Neither self-reported, informant-reported, nor observer-rated extraversion were significant predictors of hostility (all *p*s > .57). Only observer-rated openness, which was negatively associated with hostility, was a significant predictor, accounting for 3.4% of the variance (Table 7). Both self-reported and observer-rated agreeableness were significant predictors of hostility (Table 8). The direction of the effect was as hypothesized (i.e., both were negatively associated with hostility), with self-reported agreeableness accounting for 4.3% of the variance and observer-rated agreeableness accounting for 6.0% of the variance. While self-reported conscientiousness was unrelated to hostility, both informant-reported (2.2% of the variance) and observer-rated conscientiousness (1.4% of the variance) were significant predictors of hostility (negatively associated in both cases; Table 9). Thus, there was support for associations between parental

Table 6
Regression analysis using self-reported, informant-reported, and observer-rated neuroticism to predict hostility

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.378				
IDD							-.033
Step 2	2, 341	.014	2.45	1, 341	.013	4.52*	
IDD							-.120
Self-reported N							.144*
Step 3	3, 340	.014	1.66	1, 340	.000	.090	
IDD							-.117
Self-reported N							.152*
Informant-reported N							-.019
Step 4	4, 339	.092	8.56***	1, 339	.077	28.84***	
IDD							-.135*
Self-reported N							.145*
Informant-reported N							.003
Observer-rated N							.279***

Note. IDD = Inventory to Diagnose Depression, N = neuroticism

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 7
Regression analysis using self-reported, informant-reported, and observer-rated openness to predict hostility

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.375				
IDD							-.033
Step 2	2, 341	.004	.633	1, 341	.003	.891	
IDD							-.034
Self-reported O							.051
Step 3	3, 340	.004	.432	1, 340	.000	.033	
IDD							-.034
Self-reported O							.045
Informant-reported O							.011
Step 4	4, 339	.038	3.303*	1, 339	.034	11.877***	
IDD							-.050
Self-reported O							.045
Informant-reported O							.004
Observer-rated O							-.184***

Note. IDD = Inventory to Diagnose Depression, O = openness

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 8
Regression analysis using self-reported, informant-reported, and observer-rated agreeableness to predict hostility

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.375				
IDD							-.033
Step 2	2, 341	.044	7.818***	1, 341	.043	15.245***	
IDD							-.098
Self-reported A							-.217***
Step 3	3, 340	.060	7.287***	1, 340	.017	5.998***	
IDD							-.099
Self-reported A							-.154*
Informant-reported A							-.144*
Step 4	4, 339	.120	11.597***	1, 339	.060	23.105***	
IDD							-.105
Self-reported A							-.142*
Informant-reported A							-.098
Observer-rated A							-.251***

Note. A = agreeableness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 9
Regression analysis using self-reported, informant-reported, and observer-rated conscientiousness to predict hostility

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.375				
IDD							-.033
Step 2	2, 341	.008	1.307	1, 341	.007	2.238	
IDD							-.047
Self-reported C							-.082
Step 3	3, 340	.030	3.493*	1, 340	.022	7.814**	
IDD							-.049
Self-reported C							.020
Informant-reported C							-.18**
Step 4	4, 339	.044	3.935**	1, 339	.014	5.134*	
IDD							-.053
Self-reported C							.017
Informant-reported C							-.169**
Observer-rated C							-.121*

Note. C = conscientiousness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

hostility and all Big Five traits other than extraversion, and in many instances, these associations were present across multiple methods of assessing personality.

As for SNAP personality traits, neither self- nor informant-reported aggression (all *p*s > .11) or detachment (all *p*s > .27) were significant predictors of hostility. Informant-reported impulsivity was a significant predictor, although it accounted for only 1.9% of the variance in hostility (Table 10).

Detachment.

Only observer-rated neuroticism was a significant predictor of detachment, accounting for 5% of the variance (Table 11). This was also the case for extraversion, with observer ratings accounting for 10% of the variance (Table 12). Both of these effects were in the expected direction, with higher levels of neuroticism being associated with more detachment, and higher levels of extraversion being associated with less detachment. Informant-reported and observer-rated openness were both significant predictors of detachment, with the former accounting for 1.6% of the variance and the latter accounting for 7.6% of the variance (Table 13). Greater openness was associated with less detachment. For agreeableness and conscientiousness, only observer ratings of these traits significantly predicted detachment, accounting for 6.2% and 4.3% of the variance respectively (Table 14; Table 15). Both of these traits were negatively associated with detachment, which corresponds to the expected direction of effect for agreeableness (no direction was specified for conscientiousness). In sum, there was support for associations between parental detachment and all of the Big Five traits; however, only observer-rated levels of these traits tended to significantly predict this parenting behaviour in full models.

With regard to SNAP personality traits, neither self- nor informant-reported aggression predicted detachment (all *p*s > .16). However, informant-reported detachment

Table 10
Regression analysis using self- and informant-reported impulsivity to predict hostility

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 328	.001	.229				
IDD							-.026
Step 2	2, 327	.003	.551	1, 327	.003	.833	
IDD							-.033
Self-reported IM							.051
Step 3	3, 326	.022	2.470	1, 326	.019	6.331*	
IDD							-.038
Self-reported IM							-.015
Informant-reported IM							.153*

Note. IDD = Inventory to Diagnose Depression, IM = impulsivity

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 11
Regression analysis using self-reported, informant-reported, and observer-rated neuroticism to predict detachment

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.303				
IDD							.030
Step 2	2, 341	.004	.667	1, 341	.003	1.031	
IDD							-.012
Self-reported N							.069
Step 3	3, 340	.006	.651	1, 340	.002	.622	
IDD							-.020
Self-reported N							.048
Informant-reported N							.050
Step 4	4, 339	.056	5.055***	1, 339	.051	18.166***	
IDD							-.034
Self-reported N							.042
Informant-reported N							.068
Observer-rated N							.226***

Note. IDD = Inventory to Diagnose Depression, N = neuroticism

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 12
Regression analysis using self-reported, informant-reported, and observer-rated extraversion to predict detachment

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.303				
IDD							.030
Step 2	2, 341	.007	1.284	1, 341	.007	2.263	
IDD							.008
Self-reported E							-.084
Step 3	3, 340	.018	2.134	1, 340	.011	3.814	
IDD							-.005
Self-reported E							-.019
Informant-reported E							-.126
Step 4	4, 339	.118	11.293***	1, 339	.099	38.071***	
IDD							-.018
Self-reported E							-.005
Informant-reported E							-.119
Observer-rated E							-.316***

Note. E = extraversion, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 13
Regression analysis using self-reported, informant-reported, and observer-rated openness to predict detachment

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.303				
IDD							.030
Step 2	2, 341	.001	.151	1, 341	.000	.001	
IDD							.030
Self-reported O							.002
Step 3	3, 340	.017	1.935	1, 340	.016	5.498*	
IDD							.030
Self-reported O							.074
Informant-reported O							-.145*
Step 4	4, 339	.093	8.692***	1, 339	.076	28.495***	
IDD							.007
Self-reported O							.073
Informant-reported O							-.157**
Observer-rated O							-.277***

Note. IDD = Inventory to Diagnose Depression, O = openness

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 14
Regression analysis using self-reported, informant-reported, and observer-rated agreeableness to predict detachment

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.303				
IDD							.030
Step 2	2, 341	.017	3.019*	1, 341	.017	5.731*	
IDD							-.010
Self-reported A							-.135*
Step 3	3, 340	.038	4.432**	1, 340	.020	7.149**	
IDD							-.012
Self-reported A							-.065
Informant-reported A							-.159**
Step 4	4, 339	.099	9.329***	1, 339	.062	23.153***	
IDD							-.018
Self-reported A							-.053
Informant-reported A							-.112
Observer-rated A							-.254***

Note. A = agreeableness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 15
Regression analysis using self-reported, informant-reported, and observer-rated conscientiousness to predict detachment

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.001	.303				
IDD							.030
Step 2	2, 341	.006	1.042	1, 341	.005	1.780	
IDD							.017
Self-reported C							-.073
Step 3	3, 340	.016	1.879	1, 340	.010	3.537	
IDD							.016
Self-reported C							-.004
Informant-reported C							-.123
Step 4	4, 339	.059	5.301***	1, 339	.043	15.330***	
IDD							.009
Self-reported C							-.009
Informant-reported C							-.101
Observer-rated C							-.207***

Note. C = conscientiousness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

(1.9% of the variance) and impulsivity (1.6% of the variance) significantly predicted detachment (Table 16; Table 17). Both effects were in the expected direction, such that higher levels of these traits were associated with more detachment.

Sensitivity.

Only observer-rated neuroticism was a significant predictor of sensitivity, accounting for 3.3% of the variance (Table 18). Observer-rated extraversion was also the only significant predictor of sensitivity, accounting for 4.7% of the variance (Table 19). Both of these effects were in the expected direction, with higher levels of neuroticism being associated with less sensitivity, and higher levels of extraversion being associated with more sensitivity. Greater sensitivity was also significantly predicted by higher levels of observer-rated openness, which accounted for 10% of the variance (Table 20). For agreeableness, self-reported, informant-reported, and observer-rated levels were all significant predictors (Table 21), all effects were in the expected direction (i.e., higher levels of agreeableness were associated with greater sensitivity), and the full model accounted for 12% of the variance. Only observer-rated conscientiousness was a significant predictor of sensitivity, accounting for 3.8% of the variance (Table 22). Overall, these findings indicate that there were associations between parental sensitivity and all of the Big Five traits, and that observer ratings were once again the most consistently significant predictor.

For SNAP personality traits, surprisingly, neither self- nor informant-reported aggression predicted sensitivity (all *p*s > .14), nor did detachment (all *p*s > .08). Informant-reported impulsivity did significantly predict sensitivity (Table 23); however, it only accounted for 1.4% of the variance.

Supportive presence.

Only observer-rated neuroticism was a significant predictor of supportive presence,

Table 16
Regression analysis using self- and informant-reported detachment to predict detachment

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 328	.001	.431				
IDD							.036
Step 2	2, 327	.004	.559	1, 327	.002	.766	
IDD							.027
Self-reported DT							.049
Step 3	3, 326	.022	2.48	1, 326	.019	6.224*	
IDD							.026
Self-reported DT							-.042
Informant-reported DT							.164*

Note. DT = detachment, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 17
Regression analysis using self- and informant-reported impulsivity to predict detachment

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 328	.001	.431				
IDD							.036
Step 2	2, 327	.001	.227	1, 327	.000	.024	
IDD							.037
Self-reported IM							-.009
Step 3	3, 326	.018	1.969	1, 326	.016	5.446*	
IDD							.033
Self-reported IM							-.070
Informant-reported IM							.142*

Note. IDD = Inventory to Diagnose Depression, IM = impulsivity

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 18
Regression analysis using self-reported, informant-reported, and observer-rated neuroticism to predict sensitivity

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.123				
IDD							.019
Step 2	2, 341	.000	.066	1, 341	.000	.009	
IDD							.015
Self-reported N							.006
Step 3	3, 340	.001	.062	1, 340	.000	.056	
IDD							.017
Self-reported N							.013
Informant-reported N							-.015
Step 4	4, 339	.034	2.953*	1, 339	.033	11.621***	
IDD							.029
Self-reported N							.019
Informant-reported N							-.029
Observer-rated N							-.183***

Note. IDD = Inventory to Diagnose Depression, N = neuroticism

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 19
Regression analysis using self-reported, informant-reported, and observer-rated extraversion to predict sensitivity

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.123				
IDD							.019
Step 2	2, 341	.001	.213	1, 341	.001	.304	
IDD							.011
Self-reported E							-.031
Step 3	3, 340	.002	.255	1, 340	.001	.338	
IDD							.007
Self-reported E							-.011
Informant-reported E							-.038
Step 4	4, 339	.050	4.427**	1, 339	.047	16.907***	
IDD							.016
Self-reported E							-.021
Informant-reported E							-.043
Observer-rated E							.218***

Note. E = extraversion, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 20
Regression analysis using self-reported, informant-reported, and observer-rated openness to predict sensitivity

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.123				
IDD							.019
Step 2	2, 341	.002	.364	1, 341	.002	.606	
IDD							.018
Self-reported O							.042
Step 3	3, 340	.003	.366	1, 340	.001	.370	
IDD							.018
Self-reported O							.023
Informant-reported O							.038
Step 4	4, 339	.103	9.715***	1, 339	.100	37.646***	
IDD							.044
Self-reported O							.025
Informant-reported O							.051
Observer-rated O							.317***

Note. IDD = Inventory to Diagnose Depression, O = openness

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 21
Regression analysis using self-reported, informant-reported, and observer-rated agreeableness to predict sensitivity

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.123				
IDD							.019
Step 2	2, 341	.044	7.684***	1, 341	.044	15.599***	
IDD							.084
Self-reported A							.219
Step 3	3, 340	.073	8.901***	1, 340	.029	10.535***	
IDD							.087
Self-reported A							.136*
Informant-reported A							.189***
Step 4	4, 339	.122	11.724***	1, 339	.044	18.798***	
IDD							.091
Self-reported A							.126*
Informant-reported A							.148*
Observer-rated A							.226***

Note. A = agreeableness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 22
Regression analysis using self-reported, informant-reported, and observer-rated conscientiousness to predict sensitivity

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.123				
IDD							.019
Step 2	2, 341	.002	.320	1, 341	.002	.517	
IDD							.026
Self-reported C							.039
Step 3	3, 340	.009	1.074	1, 340	.008	2.580	
IDD							.027
Self-reported C							-.020
Informant-reported C							.105
Step 4	4, 339	.047	4.174**	1, 339	.038	13.357***	
IDD							.034
Self-reported C							-.015
Informant-reported C							.085
Observer-rated C							.195***

Note. C = conscientiousness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 23
Regression analysis using self- and informant-reported impulsivity to predict sensitivity

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 328	.000	.014				
IDD							.006
Step 2	2, 327	.001	.103	1, 327	.001	.092	
IDD							.009
Self-reported IM							-.024
Step 3	3, 326	.015	1.626	1, 326	.014	4.669*	
IDD							.014
Self-reported IM							.032
Informant-reported IM							-.132*

Note. IDD = Inventory to Diagnose Depression, IM = impulsivity

* $p < .05$, ** $p < .01$, ***$p < .001$.

accounting for 2.8% of the variance (Table 24). This was also the case for extraversion, though observer ratings accounted for 7.3% of the variance in this case (Table 25). Both of these effects were in the expected direction, with higher levels of neuroticism being associated with less supportiveness, and higher levels of extraversion being associated with more supportiveness. Informant-reported and observer-rated openness were both significant predictors of supportive presence accounting for 1.1% and 7.0% of the variance respectively (Table 26). In the case of agreeableness, informant reports (accounting for 3.4% of the variance) and observer ratings (accounting for 7.1% of the variance) were once again significant predictors of supportive presence (Table 27). As hypothesized, greater agreeableness was associated with more supportiveness. Only higher levels of observer-rated conscientiousness significantly predicted greater parental supportive presence, accounting for 5% of the variance (Table 28).

As for SNAP personality traits, neither self- nor informant-reported aggression predicted supportive presence (all *p*s > .60). This was also the case for detachment (all *p*s > .07). Informant-reported impulsivity did significantly predict sensitivity; however, it only accounted for 1.5% of the variance (Table 29).

Interactions Between Traits: Neuroticism and Agreeableness

To our knowledge, past studies of parent personality and parenting have examined only main effects, although it is possible that the Big Five traits interact with each other to affect parenting behaviours. Recently, Ode, Robinson, and Wilkowski (2008) reported that neuroticism and agreeableness interacted to predict anger and aggression, such that high levels of neuroticism were less predictive of anger at higher levels of agreeableness. The authors interpreted this as reflecting agreeableness' ability to 'cool' or down-regulate the tendency toward anger and aggression that may be fueled by high levels of neuroticism.

Table 24
Regression analysis using self-reported, informant-reported, and observer-rated neuroticism to predict supportive presence

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.055				
IDD							-.013
Step 2	2, 341	.000	.064	1, 341	.000	.073	
IDD							-.022
Self-reported N							-.018
Step 3	3, 340	.000	.045	1, 340	.007	.056	
IDD							-.022
Self-reported N							-.021
Informant-reported N							.006
Step 4	4, 339	.029	2.498*	1, 339	.028	9.854**	
IDD							.008
Self-reported N							-.017
Informant-reported N							-.008
Observer-rated N							-.169**

Note. IDD = Inventory to Diagnose Depression, N = neuroticism

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 25
Regression analysis using self-reported, informant-reported, and observer-rated extraversion to predict supportive presence

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.055				
IDD							-.013
Step 2	2, 341	.002	.293	1, 341	.002	.530	
IDD							-.023
Self-reported E							-.041
Step 3	3, 340	.00	.340	1, 340	.001	.450	
IDD							-.019
Self-reported E							-.063
Informant-reported E							.043
Step 4	4, 339	.076	6.597***	1, 339	.073	26.732***	
IDD							-.008
Self-reported E							-.075
Informant-reported E							.037
Observer-rated E							.271***

Note. E = extraversion, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 26
Regression analysis using self-reported, informant-reported, and observer-rated openness to predict supportive presence

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.055				
IDD							-.013
Step 2	2, 341	.000	.038	1, 341	.000	.022	
IDD							-.013
Self-reported O							.008
Step 3	3, 340	.012	1.320	1, 340	.011	3.884*	
IDD							-.013
Self-reported O							-.053
Informant-reported O							.123
Step 4	4, 339	.081	7.472***	1, 339	.070	25.638***	
IDD							.009
Self-reported O							-.052
Informant-reported O							.134*
Observer-rated O							.265***

Note. IDD = Inventory to Diagnose Depression, O = openness

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 27
Regression analysis using self-reported, informant-reported, and observer-rated agreeableness to predict supportive presence

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.055				
IDD							-.013
Step 2	2, 341	.029	5.155***	1, 341	.029	10.253***	
IDD							.041
Self-reported A							.179***
Step 3	3, 340	.064	7.691***	1, 340	.034	12.418***	
IDD							.043
Self-reported A							.089
Informant-reported A							.206***
Step 4	4, 339	.135	13.229***	1, 339	.071	28.009***	
IDD							.049
Self-reported A							.076
Informant-reported A							.156**
Observer-rated A							.274***

Note. A = agreeableness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 28
Regression analysis using self-reported, informant-reported, and observer-rated conscientiousness to predict supportive presence

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 342	.000	.055				
IDD							-.013
Step 2	2, 341	.003	.504	1, 341	.003	.954	
IDD							-.004
Self-reported C							.054
Step 3	3, 340	.015	1.768	1, 340	.012	4.287*	
IDD							-.002
Self-reported C							-.022
Informant-reported C							.135*
Step 4	4, 339	.065	5.194***	1, 339	.050	18.086***	
IDD							.006
Self-reported C							-.017
Informant-reported C							.112
Observer-rated C							.224***

Note. C = conscientiousness, IDD = Inventory to Diagnose Depression

* $p < .05$, ** $p < .01$, ***$p < .001$.

Table 29
Regression analysis using self- and informant-reported impulsivity to predict supportive presence

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	1, 328	.001	.226				
IDD							-.026
Step 2	2, 327	.001	.146	1, 327	.000	.067	
IDD							-.028
Self-reported IM							.014
Step 3	3, 326	.015	1.709	1, 326	.015	4.832*	
IDD							-.024
Self-reported IM							.072
Informant-reported IM							-.134*

Note. IDD = Inventory to Diagnose Depression, IM = impulsivity

* $p < .05$, ** $p < .01$, ***$p < .001$.

While Ode and colleagues (2008) were not predicting parenting behavior in their study, the model they proposed is potentially relevant to parenting. To explore this possibility, we ran separate regression analyses for each method of personality assessment (self, informant, observer) to test whether the interaction between neuroticism and agreeableness (N x A) predicted parental hostility, the parenting style most analogous to the outcome variable of anger in the Ode et al. study. Values for neuroticism and agreeableness were centered by subtracting the sample mean from each score, and the interaction term was created by multiplying the centered neuroticism and agreeableness values with each other. Depressive symptomatology (IDD scores), neuroticism, and agreeableness were all entered in Step 1 of the model, and the N x A interaction term was added in Step 2.

In models using self- and informant-reported neuroticism and agreeableness, the N x A interaction was not a significant predictor of hostility (all *p*s > .52). However, when using observer-rated neuroticism and agreeableness, the interaction did significantly predict hostility (Table 30). In order to interpret the interaction, the effect was plotted (Figure 1) and simple slopes analyses were conducted in accordance with procedures set out by Aiken and West (1996). These analyses revealed that the association between parental neuroticism and hostility was not significant when mothers were high on agreeableness (i.e., 1 SD above the mean of agreeableness) ($\beta = -.07$, $t(377) = -.86$, *ns*). In contrast, the association between parental neuroticism and hostility was positive and significant when mothers were low on agreeableness (i.e., 1 SD below the mean of agreeableness) ($\beta = .27$, $t(377) = 4.24$, $p < .001$). Thus, at lower levels of agreeableness, as maternal neuroticism increased, so did parental hostility. These findings indicate that parent personality traits (in this case, neuroticism and agreeableness), as rated by observers, interacted in meaningful ways to predict hostility, a parenting behaviour with significant relevance for children's mental health (McKee et al.,

Table 30
Regression analysis using observer-rated neuroticism, agreeableness, and the neuroticism by agreeableness interaction to predict hostility

	Overall Model			Change Statistics			
	df	R^2	*F*	*df*	ΔR^2	ΔF	β
Step 1	3, 378	.136	19.84***				
IDD							-.028
Observer-rated N							.173**
Observer-rated A							-.236***
Step 2	4, 377	.180	20.67***	1, 377	.044	20.15***	
IDD							-.028
Observer-rated N							.104
Observer- rated A							-.125
Observer-rated N x A							-.266***

Note. A = agreeableness, IDD = Inventory to Diagnose Depression, N = neuroticism, N x A = neuroticism by agreeableness interaction

* $p < .05$, ** $p < .01$, ***$p < .001$.

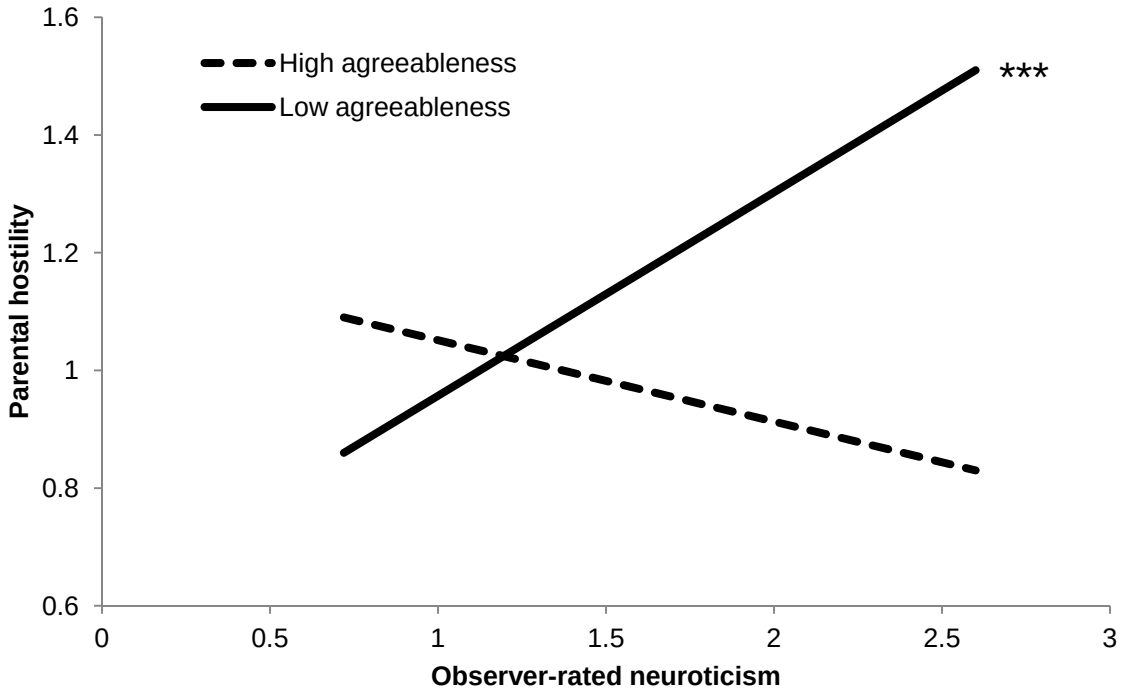

Figure 1. Relationship between observer-rated neuroticism and parental hostility as a function of observer-rated agreeableness.

Note. High agreeableness is defined as 1 SD above the mean, low agreeableness is defined as 1 SD below the mean.

* $p < .05$, ** $p < .01$, ***$p < .001$.

2008).

Discussion

In the present study, associations between maternal personality traits (self-reported, informant-reported, and observer-rated) and parenting behaviours were investigated in a large community sample. This investigation built upon previous work examining parent personality and parenting by incorporating informant reports and observer ratings of personality, as well as by including a measure of personality (the SNAP) designed to tap more extreme aspects of personality that might have greater relevance for maladaptive parenting behaviours. Depressive symptoms were also assessed in conjunction with personality traits to address a major shortcoming of past research, namely the failure to account for the potential for shared variance between depressive symptoms and personality in predicting parenting. Our findings suggest that agreeableness, a trait that has not received much attention in the literature on parent personality and parenting, is significantly and consistently associated with both positive and negative parenting behaviours. This association emerged across methods of personality assessment, indicating that this association is not just a methodological artifact. In addition, our results support the idea that informant reports and observer ratings of parent personality provide incremental value, as these methods often showed predictive validity beyond self-report.

Self-reported Big Five personality traits were not generally significantly correlated with parenting behaviours, the notable exception being self-reported agreeableness, which was significantly correlated with all parenting behaviours. These results differ from the Prinzie et al. (2009) meta-analysis in which they found that all self-reported Big Five personality traits were modestly but robustly associated with parental warmth, behavioural control, and autonomy support. However, it is important to note that approximately half of

the 30 studies included in the meta-analysis assessed parenting via self-report. Therefore, some associations in those studies may have been artifacts stemming from the exclusive use of self-report measures of both parenting and parent personality. For example, mothers who reported a high level of extraversion may also have been more likely to endorse a sensitive and supportive parenting style in order to be consistent with the overall view they have of themselves. This is problematic because such self-reported continuity across domains can create associations that are unique to the methods being used, and as evidenced in our sample, do not replicate when an observational measure of parenting is used. Relating our findings more specifically to studies that used self-reports of personality and observational measures of parenting, Kochanska et al. (1997) did not use a Big Five measure of personality and Smith et al. (2007) found that maternal personality was associated with emotional expression, but not parenting behaviours as such. In sum, the associations between self-reported personality and parenting found in our sample correspond well to previous findings of studies that used observational measures of parenting. They are somewhat discrepant from studies in which self-report was used for both personality and parenting, likely for reasons described above. This further highlights the notion that the way in which parenting is assessed has concrete implications for study results (Zaslow et al., 2006).

Informant-reported Big Five personality traits showed the same general pattern as self-reported traits: they did not tend to be significantly correlated with parenting behaviours. A noteworthy exception was informant-reported conscientiousness, which was significantly correlated with three of the four parenting behaviours. Thus, informant-reported conscientiousness was more closely associated with parenting behaviours than self-reported conscientiousness. This finding is similar to previous research by Wagerman and Funder (2007), in which they found that informant-reported conscientiousness correlated more

strongly with academic performance than did self-reported conscientiousness. Thus, our finding further highlights the useful, and often unique, information that can be obtained from informant reports. Why the effect was present for conscientiousness and not a trait such as neuroticism may be explained by what Vazire (2010) terms *self-other knowledge asymmetry*, whereby the self is thought to be the better judge for traits that are low in observability (e.g., neuroticism), and informants are thought to be better judges for traits that are high in evaluativeness (e.g., conscientiousness). As such, informant reports may be particularly useful for traits where social desirability and self-serving biases come into play.

A similar pattern emerged with regard to the SNAP. SNAP self-reported aggression, detachment, and impulsivity were not significantly correlated with any of the parenting behaviours. However, some informant-reported traits, particularly impulsivity, did correlate significantly with parenting behaviours, including those with particularly strong implications for child outcomes (e.g., hostility; Knox et al., 2011; McKee et al., 2008). Given that the SNAP taps more extreme aspects of personality, it may be unlikely that self-report of these more maladaptive or undesirable traits will show meaningful links to important behaviors such as parenting, perhaps because of poor insight or social desirability. Thus, our findings further corroborate assertions that informant reports are particularly useful when assessing more extreme, maladaptive, and potentially disordered personality (Klonsky et al., 2002; Oltmanns & Turkheimer, 2009). Few studies of parent personality and parenting have examined a broad range of traits, including traits that may reflect more maladaptive or extreme aspects of normative traits. This reflects a key limitation of past research, as it may be that these more extreme aspects are one most likely to predict negative parenting behaviours. In fact, although the SNAP did not tend to account for much overall variance in parenting, informant-reported SNAP traits did predict some fairly rare parenting behaviours

(e.g., hostility) that have important implications for child outcomes (McKee et al., 2008). Overall, our results indicate that informant reports of personality, especially those tapping more extreme and/or maladaptive aspects of personality, help to provide a more complete picture of parenting behaviour and should be used more often in this type of research.

With respect to observer ratings of personality, all observer-rated Big Five personality traits correlated significantly with all four parenting behaviours. As well, these associations were all in the expected direction. Given that we are not aware of any studies that have examined associations between observer-rated parent personality and parenting, it is not possible to state whether or not this finding is consistent with past research. However, our results are consistent with past research demonstrating that observer ratings show predictive value (Connelly & Ones, 2010; Connolly et al., 2007), as they often provided either incremental or unique predictive ability in our sample. Overall, our findings certainly suggest that observer ratings can be helpful in studies of parent personality.

We found that there was good convergence between self- and informant-reported Big Five personality traits. Correlations between self and informant for the same trait were significant for all Big Five traits, and corresponded to the typically reported range of .40-.60 (Vazire & Carlson, 2010). Observer ratings did not tend to correlate significantly with self- and informant reports; indeed, the only significant association present across all methods for the same trait was for agreeableness. Durbin and colleagues (2009) obtained similar results in their investigation using a multimethod approach to personality: observer ratings of personality only significantly correlated with self and informant ratings for three of the five Big Five traits. The discrepancy in our sample between observer ratings and self- and informant reports may have emerged for several reasons. For example, observers made their ratings of parent personality based on three samples of behaviour that likely were influenced

by experimental demands. In one sample of behaviour, parents were required to prohibit their child from playing with attractive toys. For some parents, this may have been a frustrating experience which required them to behave in an atypical way. As a result, the observer may have rated the parent as higher in neuroticism and lower in agreeableness than they would have if the parent-child interaction had not had this constraint. Also, Connelly and Ones (2010) explain that low-visibility personality traits that reflect internal thoughts and feelings (e.g., neuroticism, openness) are much harder for observers to rate than high-visibility traits that reflect tendencies in behaviour (e.g., extraversion). As such, observer ratings of these low-visibility traits requires more inference, and thus would be less likely to correspond with self-report. The two issues discussed above are not meant to imply that observer ratings are more or less *accurate* than self and informant reports, they are simply possible reasons for the discrepancy that was found. As Funder (1995) points out, even if we assume that personality traits are real characteristics of individuals, accuracy will always remain relative since there is no truly objective method of assessing personality.

In the multivariate models, Big Five personality traits (across all sources, but predominantly observer-rated) were found to be significant predictors of all parenting behaviours; however, the mechanisms by which these traits shape parenting remains unknown. Self-reported and observer-rated neuroticism were found to predict parental hostility, and observer-rated neuroticism was found to predict parental detachment. Higher neuroticism may shape such behaviours in a few different ways. Given that neuroticism is characterized by a propensity for negative emotionality (NE), parents who are higher in neuroticism by definition experience negative emotions more frequently, which may often be manifested in interactions with their child. Furthermore, NE may decrease a parent's ability to successfully cope with problematic child behaviours (e.g., rule-breaking, outbursts, etc.),

such that they would be more likely to engage in negative parenting behaviours. As proposed by Belsky and Barends (2002) and supported by our findings, neuroticism can be expressed as two different forms of NE: overt, intrusive behaviour which results in hostility, or anxious and withdrawn behaviour, which results in detachment. The use of Big Five facets, which have been shown to provide more fine-grained predictions of behaviour than broad factors (Paunonen & Ashton, 2001) might prove helpful in further differentiating which aspects of neuroticism are associated with hostility and which are associated with detachment.

Observer-rated parental extraversion significantly predicted both sensitivity and supportive presence. Extraversion likely fosters positive parenting behaviours via the same general mechanism as neuroticism: parents who are high in extraversion tend to experience greater overall positive affectivity and are interpersonally-oriented, leading to more sensitive and supportive interactions with their child. A less likely, though plausible alternative must also be acknowledged, which is that positive mother-child interactions may elicit more extraverted behaviour. This relates to a similar but more general issue, which is that the experience of parenting itself (both becoming and being a parent) has been associated with changes in personality (Jokela, Kivimäki, Elovainio, & Keltikangas-Järvinen, 2009). However, a measure of parent personality prior to becoming a parent, as well as assessment of parent personality over time, is required to address this issue.

Observer-rated parental openness was found to predict sensitivity, and both informant-reported and observer-rated parental openness were found to predict supportive presence. Given that openness is associated with varied interests and curiosity, parents who are higher on this trait may wish to instill in their child the same imagination and curiosity that they themselves have, and seek to do so via sensitive and supportive interactions. Furthermore, openness may influence the extent to which a parent finds childrearing to be

interesting and engaging, which would likely be manifested in their parenting behaviours. Previous research has suggested that a very high level of openness is associated with suboptimal parenting (Metsäpelto & Pulkkinen, 2003). We did not find a linear association between higher openness and negative parenting behaviours in our sample, although we did not test for curvilinear effects and therefore cannot rule out the possibility of such a pattern.

Higher agreeableness, across all sources, was found to strongly predict positive parenting behaviours (and vice versa for low agreeableness and negative parenting behaviours). Individuals higher in agreeableness tend to be good-natured, pleasant, and helpful, which may shape parenting behaviours via a range of processes. For example, de Haan and colleagues (2009) found that parental sense of competence mediated the relationship between parental agreeableness and positive parenting, and so it might be that agreeableness exerts its effects by increasing competence, which in turn leads to more sensitive and supportive parenting. In addition, agreeableness has been found to play a role in the self-regulation of negative affect (Ode & Robinson, 2008), to be a strong predictor of parent emotion socialization practices (Hughes & Gullone, 2010), and to be associated with lower parenting stress (Mulsow, Caldera, Pursley, Reifman, and Huston, 2004). Thus, parents higher in agreeableness, by virtue of being better able to regulate their negative affect, providing appropriate emotion socialization, and being less stressed, may be more likely the engage in sensitive and supportive interactions with their child. Our finding that neuroticism and agreeableness interacted to predict parental hostility relates well to this possibility, though in our sample, the effect emerged for low agreeableness. That is, neuroticism and parenting were essentially unrelated when agreeableness was high, but were significantly positively related at low levels of agreeableness. Thus, instead of high agreeableness acting to buffer the effects of high neuroticism on hostility, our findings suggest that low

agreeableness might act to intensify the effects of high neuroticism on hostility. Both of these possibilities reinforce the idea that agreeableness is an important and understudied trait with regard to parenting, and will certainly require further investigation. Also, interactions between other Big Five traits (e.g., neuroticism and conscientiousness) in predicting parenting are no doubt possible and worthy of exploration in future studies.

Observer-rated conscientiousness, which reflects organized and goal driven behaviour, was also found to be a significant predictor of positive parenting behaviours. Little research has examined conscientiousness in relation to parenting, and so it is difficult to speculate about how it might shape parenting. Conscientiousness has been associated with problem-focused coping, which in turn is associated with positive affect (Bartley & Roesch, 2011), and thus it might shape parental sensitivity and supportiveness via adaptive coping strategies and increased positive affect. In order to move beyond speculation about how personality traits shape parenting, it is clear that future research will have to address this question more specifically by including measures of hypothesized moderators and mediators so as to carry out a priori analyses.

The only significant bivariate association found between depressive symptoms and parenting behaviours was with detachment. Given the ample research documenting the relationship between depression and parenting (Lovejoy et al., 2000), this was somewhat surprising. As previous work has found that even subthreshold depressive symptoms in nonclinical samples are associated with negative parenting (Leadbeater et al., 1996; McLearn et al., 2006), we cannot fully attribute the lack of associations between depression and parenting to our use of a community sample, although this kind of sample would certainly reduce the magnitude of the association. However, some of the previous work examining subthreshold depressive symptoms in community samples relied on maternal reports of

parenting behaviour as opposed to observational measures (Albright & Tanis-LeMonda, 2002; McLearn et al., 2006). Thus, monomethod bias created by having mothers report on both their depressive symptoms and their parenting behaviours may have contributed to associations found in these studies.

In the present study, personality, reported from a range of sources, accounted for more variance in parenting than did depressive symptoms. This may be related to the nonclinical nature of our sample, in which depressive symptoms were generally low, although other studies have found associations between subthreshold symptoms and parenting (Dix et al., 2004). It is likely that personality, depression, and parenting are related via an array of complex and dynamic processes that are best understood through longitudinal research. For example, in surprisingly few cases in our data, the same personality traits were correlated with both depressive symptoms and parenting, raising the possibility of testing whether personality mediated the association between depression and parenting. However, a longitudinal approach is better suited for testing such models, since a cross-sectional approach does not allow relatively clear identification of a purported causal variable.

Strengths, Limitations, and Future Directions

Several aspects of the present study can be considered strengths, including: 1) the use of a large sample size; 2) the use of informant reports and observer ratings of personality; 3) the inclusion of a measure that taps extreme aspects of personality; and 4) observational assessment of parenting in a naturalistic home environment. These represent novel additions to previous work in the field. However, the study was not without limitations. First, the sample consisted solely of mothers. Although this decision was guided by practical concerns (i.e., it was not feasible to collect observational measures of parenting for both mothers and fathers), it limits the generalizability of the findings. Since there exists research suggesting

that there are differences between the parenting styles of mothers and fathers (McKinney & Renk, 2008), it would be of interest to determine if the associations between paternal personality and parenting are the same as those between maternal personality and parenting reported here. Investigating this question represents an important direction for future research. Second, it is likely that our methodology biased the odds in favour of finding associations between observer ratings of personality and observational measures of parenting. The sample of maternal behavior considered in making observer ratings of personality was based in part on video recorded parent-child interactions that were used to assess parenting behaviours. Although the personality ratings focused on trait descriptors and the parenting coding on interactions within mother-child dyads, it stands to reason that mothers who displayed greater negative affectivity with their children would be rated as higher on neuroticism, and so forth. In order to overcome this issue in future work, it may be best to rate parent personality based on an independent sample of behaviour (e.g., video of lab tasks designed to specifically assess adult personality). Third, the cross-sectional nature of the study precluded identifying how associations between parent personality and parenting might change over time as children age. Komsi and colleagues (2008) have suggested that parent personality and child temperament develop in transaction, and so future research should endeavour to take a longitudinal approach as it is more likely to permit for inferences about the direction of effects.

Furthermore, some of the quite small associations between parenting and personality were likely only significant due to our large sample size. In addition, it must be noted that for the sake of exploring a novel dataset, we ran many analyses without correcting for multiple tests. As for psychometric properties of the measures we used, the SNAP had some internal consistencies in our sample that were lower than desirable, though not inconsistent with those

reported by its authors (Harlan & Clark, 1999). Lastly, multivariate models were used instead of structural equation modeling (SEM). SEM requires at least three indicators to make a latent construct (McDonald, 1999), and these indicators need to be at least moderately correlated; unfortunately, observer ratings were insufficiently related to self- and informant reports to make such models feasible. Creating personality variables across methods would have allowed us to circumvent issues associated with each method and likely obtain a more accurate picture of each trait. As a result, SEM also would have made it possible to reduce the number of analyses conducted. However, it must be noted that observer ratings of personality are not typically highly correlated with other methods (Connelly & Ones, 2010; Durbin et al., 2009), and thus not being able to use SEM is not uncommon in multimethod research that uses observational and self-report measures.

In order to work toward a more complete understanding of the relationship between parent personality and parenting, future research will have to increasingly have to take into account child effects on parenting and how they affect the relationship between parent personality and parenting. It is well-established that parenting does not occur in a vacuum; rather, it is a reciprocal process in which children, by virtue of their own behaviour, shape the parenting they receive (Ganiban, Ulbricht, Saudino, Reiss, & Neiderhiser, 2011; Patterson & Fisher, 2002). Child characteristics likely moderate the parent personality-parenting relationship. Researchers have begun to address this likelihood, although limited findings to date have been mixed (Karreman, van Tuijl, van Aken, & Deković, 2008; Koenig, Barry, & Kochanska, 2010). Therefore, this represents a fruitful avenue for further research.

In conclusion, we found that maternal personality traits were associated with both positive and negative parenting behaviours in ways that showed only minimal to moderate agreement with past research (Prinzie et al., 2009). The magnitude of these associations was

generally modest, with the strongest effects emerging for the trait of agreeableness. Agreeableness has not been the focus of much past research on parent personality and parenting, and thus our findings suggest that more research on this trait in relation to parenting is certainly warranted. Furthermore, informant-reported and observer-rated personality traits showed incremental value beyond self-report in the prediction of parenting. To our knowledge, the present project was the first to use maternal personality traits from three different sources, in conjunction with an observational measure of parenting, to examine the association between parent personality and parenting. It therefore represents a notable addition to the field and will hopefully be helpful in guiding future research.

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Appendix A: Parent-Child Interaction Tasks Coding Manual & Record Form

Note: This coding system is derived from the Teaching Tasks coding manual and Qualitative Ratings for Parent-Child Interactions (Weinfield, Egeland, & Ogawa, 1998; Cox & Crnic, 2003).

CODING

A. RATING SCALES

There are fifteen rating scales used for coding the parenting tasks. Seven of these scales focus on parent behavior, eight focus on child behavior, and two scales are more dyadic. The scales are:

Parent Sensitivity/Responsivity
Parent Detachment
Parent Supportive Presence
Parent Intrusiveness
Parent Hostility
Parent Quality of Instruction
Parent Confidence
Parent Positive Affectivity
Parent Negative Affectivity
Child Persistence
Child Interest/Engagement
Child Positive Affect
Child Negativity to Parent
Child Negative Affect
Child Compliance
Child Affection (positive orientation) to Parent
Child Avoidance of Parent
Quality of Relationship
Boundary Dissolution

Each scale is presented here, containing an initial description of the goals of the scale and a description of each rating point.

Parent Sensitivity/Responsivity: This scale focuses on how the parent observes and responds to their child's social gestures, expressions, and signals as well as how they respond to child negative affect. The key defining characteristic of a sensitive interaction is that it is child-centered. The sensitive parent is tuned to and manifests awareness of the child's needs, moods, interests, and capabilities, and allows this awareness to guide his/her interaction. A sensitive parent provides stimulation that is appropriate to the situation. He/she provides the child with contingent vocal stimulation and acknowledges the child's interest, efforts, affect, and accomplishments. A sensitive parent can spend time just watching the child but the difference between them and a detached parent is that the sensitive parent seems to be actively taking an interest in the child's activities, as evidenced by comments and embellishments when the child loses interest. A sensitive interaction is well timed and paced to the child's responses, a function of its child-centered nature. Such an interaction appears to be "in sync". The parent paces toys and games to keep the child interested and engaged, but also allows the child to disengage and independently explore the toys. Some markers of sensitivity include: (a) acknowledging the child's affect; (b) contingent vocalizations by the parent; (c) appropriate attention focusing; (d) evidence of good timing paced to the child's interest and arousal level; (e) picking up on the child's interest in toys or games; (f) shared positive affect; (g) encouragement of child's efforts; (h) providing an appropriate level of stimulation when needed; and (i) sitting on floor or low seat, at child's level to interact.

1. **No Sensitivity.** There are almost no signs of parent sensitivity. Thus, the parent is either predominantly intrusive or detached. The parent rarely responds appropriately to the child's cues, and does not manifest awareness of the child's needs. Interactions are characteristically ill-timed or inappropriate. A parent who typically appears oblivious or punitive to the child's needs and affect would receive this score.
2. **Very Low**. This score would be given to parents who display weak or infrequent signs of sensitivity/responsiveness. While the parent is sometimes sensitive, the balance is clearly in the direction of insensitivity. The parent may give some delayed or perfunctory responses to cues from the child but the parent clearly appears more unresponsive than responsive.
3. **Low.** This rating should be given to parents who display some clear instances of sensitive responding. The parent can be characterized as sensitive to the child; however, the parent's behaviors may be mechanical in quality and ill-paced. The interaction can be characterized by a mixture of well-timed and faster paced episodes, or by a parent who is trying to be sensitive, but the interaction has signs of insensitivity. This rating may also be given to parents who are trying to interact appropriately with their child but he/she may appear not to know what to do. The parent is inconsistently sensitive and hard to categorize.
3. **Moderate**. This rating should be given to parents who are predominantly sensitive/responsive. The parent demonstrated sensitivity in most interactions but may neglect to give a fuller response or a well-timed, appropriate response. Some of the parent's responses are mixed, i.e. some are half-hearted or perfunctory, but the majority are full responses.
4. **High**. The rating should be given to parents who are exceptionally sensitive and responsive. Instances of sensitivity are rare and never striking. Interactions are characteristically well-timed and appropriate. Overall, most responses are prompt, appropriate, and effective.

Detachment/Disengagement: The detached parent appears emotionally uninvolved or disengaged and unaware of the child's needs. This parent does not react contingently to the child's vocalizations or actions, and does not provide the "scaffolding" needed for the child to explore objects in novel ways. Detached parents either miss or ignore the child's cues for help with toys and games, and their timing is out of synchrony with the child's affect and responses (although not the overwhelming barrage of stimulation that intrusive parents present). Simply allowing the child to play by him/herself is not necessarily a sure sign of detachment; this can be appropriate at times, such as when the child is playing happily or contentedly and the parent checks in with the child visually. The detached parent will remain disengaged even when the child makes a bid for interaction with the parent. The detached parent is passive and lacks the emotional involvement and alertness that characterizes a sensitive parent. He/she appears uninterested in the child. There may be a "babysitter-like" quality to the interaction in that the parent appears to be somewhat attentive to the child, but behaves in an impersonal or perfunctory manner that fails to convey an emotional connection between the parent and the child. Other parents may demonstrate a performance-orientation in that the interaction is tailored towards performing for the camera rather than reacting to and facilitating child-centered behavior.

1. **Not Detached**. This rating should be given to parents who display almost no signs of detachment or under involvement. When interacting with the child, the parent is clearly emotionally involved. These parents can be sensitive or intrusive.

2. **Minimal Detachment**. This rating should be given to parents who display minimal signs of detachment. While they are clearly emotionally involved with the child during most of the interaction, there may be brief periods of detachment.

3. **Somewhat Detached**. This rating should be given to parents who remain involved and interested in the child while at the same time demonstrating the tendency to act in an uninterested, detached or perfunctory manner. Parents alternate between periods of engagement and disengagement. The periods of disengagement may be marked by unemotional or impersonal behavior. There may be a low-level of impersonal/unemotional behavior running throughout the interaction.

4. **Moderately Detached**. This rating should be given to parents who are predominantly detached. While there may be periods of engagement, the interaction is characterized chiefly by disengagement. The parent may be passive and fail to initiate interactions with the child. When interactions do occur, they may be marked by an impersonal, perfunctory style. Parent may show a lack of emotional engagement throughout the interaction

5. **Highly Detached**. This rating should be given to parents who are extremely detached. The child plays without parent attention almost all of the time, even when the parent is within a suitable distance for interacting. In the minimal instances of involvement, the parent's behaviors are simple, mechanical, stereotyped, bland, repetitive, and perfunctory. The parent is clearly not emotionally involved with the child, and appears to be "just going through the motions".

Parent Supportive Presence: A parent scoring high on this scale expresses positive regard and emotional support to the child. This may occur by acknowledging the child's accomplishments on task the child is doing (e.g. building a house of blocks), encouraging the child with positive emotional regard (e.g. "You're really good at this"/"You got another one right") and various other ways of letting the child know that he/she has their support and confidence to do well in the setting (e.g. positive reassuring voice tone). If the child is having difficulty with a task, the parent is reassuring and calm, providing an affectively positive "secure base" for the child, perhaps leaning closer to the child to give a physical sense of support. A parent scoring low on this scale fails to provide supportive cues. They might be passive, uninvolved, aloof, or otherwise unavailable to the child. Such a parent also might give observers the impression that they are more concerned about their own adequacy in the setting than their child's emotional needs. A potential difficulty in scoring this scale is to discount messages by the parents that seemingly are supportive in verbal content but are contradicted by other aspects of the communication (e.g., the parent seems to be performing a supportive role for the camera and not really engaged in what the child is doing or feeling). Signs of such questionable support are improper timing of support, mismatch of verbal and bodily cues, and failure to have the child's attention in delivering the message. These types of supportive messages would not be weighted highly because such features suggest that supportive presence is not a well-practiced aspect of their interaction outside the laboratory setting.

1. Parent completely fails to be supportive to the child, either being aloof and unavailable or being hostile toward the child when the child shows need of some support.

2. Parent provides very little emotional support to the child. Whatever supportive presence is displayed is minimal and not timed well, either being given when the child does not really need it, or only after the child has become upset.

3. Parent gives some support but it is sporadic and poorly timed to the child's needs. The consistency of this support is uneven so as to make the mother unreliable as a supportive presence.

4. Parent does a respectable job of being available when their child needs support. The parent may lean closer as the child shows small signs of frustration and praise the child's efforts to show that they are available and supportive, but inconsistency in this style makes support unreliable or unavailable at crucial times in the session.

5. Parent provides good support, reassurance and confidence in the child's ability, but falters in this at times when the child especially could use more support. Or, parent is universally supportive but gives no evidence of modulation to the child's needs.

6. Parent establishes him/herself as supportive and encouraging toward the child and continues to provide support when the child needs it. As the child experiences more difficulty, parent support increases in commensurate fashion. The parent has some lapses, however, in which the child's performance wavers for lack of support. Yet, they redouble support and attempt to return the child to a level of confidence that is more optimal.

7. Parent skillfully provides support throughout the session. Parent sets up the situation from the beginning as one in which they are confident of the child's efforts. Parent may reject inadequate solutions to problems in a way that does not reduce their support and confidence in the child's ability to get the correct solution. If the child is having difficulty, the parent finds ways to encourage whatever solution the child can make. Parent not only is emotionally supportive but continuously reinforces the child's success.

Parent Intrusiveness: A parent scoring high on this scale lacks respect for the child as an individual and fails to understand and recognize the child's effort to gain autonomy and self-awareness. This parent interferes with the child's needs, desires and interests or actual behaviors. The parent's behavior is guided more by their own agenda rather than the child's needs. Reasonable or appropriate limit setting or directing the child's behavior to the task may be intrusive, depending on the content of the parent's involvement. Setting limits is crucial to the socialization process at this age, and giving the child directives is part of many tasks. **But behaviors are intrusive if they indicate a lack of respect for the child**. Intrusiveness can occur in a harsh physical manner (parent grabbing the child's arms or hands and placing them somewhere else), or with affection (**inappropriate** contact which interferes with the child's efforts, such as kissing, hugging, etc.), or if the parent does not allow the child autonomy in problem-solving tasks (imposes directions and does not allow opportunities for self-directed efforts). It is important that intrusiveness be evaluated from the perspective of the child. Look at cues from the child preceding or after the parent's behavior to see how the child has perceived the parent's action; and what may seem as intrusive to the coders, may not be to the child (e.g., if fast-paced stimulation from the parent is enjoyed by the child, as shown by smiles or laughter, parental behavior that would otherwise be judged as intrusive will not be counted as such. However, because this judgment is highly subjective, this aspect should not carry a lot of weight when coding, but attention to context is important.)

1. **No Intrusiveness**: No sign of intrusiveness. The parent may be involved yet continues to respect the child's needs, or may alternatively be totally uninvolved with the child and appear withdrawn. In either case, the parent does not impose directives on the child unless it is clear that the child needs direction. If directives are given, it is in a manner showing respect for the child.

2. **Very Low**: Parent may show subtle signs of being intrusive, i.e. stepping in to help before the child demonstrates need, but the child does not perceive these as intrusive and is not upset by them.

3. **Moderately Low**: There is some indication of intrusiveness but it is not pervasive. These instances are of low intensity and again may not cause the child to become upset. For example, the parent may redirect the child to a new toy/task in a poorly timed fashion. Alternatively, low level intrusiveness may be "chronic"; however, the child has the opportunity to do some exploration.

4. **Moderate**: Clear signs of intrusiveness and/or a feeling of intrusiveness that is easily or clearly picked up by the coders, but parent still allows the child periods of exploration or autonomy. The instances of intrusiveness are generally of low intensity (i.e. the parent

provides new instruction before the child has had a chance to complete the last task), yet there may be one high level act at an inappropriate time or there may be an episode of rough physical handling.

5. **Moderately High**: Clear signs that parent does not respect the child's needs and interests. There may be a couple high intensity, or several low level intrusive interactions. E.g., parent may often grab objects from the child, issue directives with no regard for child's response, or do much of the task for the child. However, parent may allow the child **some periods of exploration or autonomy**.

6. **High**: Clear incidents of intrusiveness throughout the session, and the parent's agenda clearly has precedence over the child's needs and interests. There may be either several high intensity intrusive interactions or persistent low level intrusive interactions. E.g., the parent may grab the child and physically direct behavior more than once, or the parent may be uninvolved for long periods, **but whenever they do interact, these interactions are consistently intrusive**. **Parent also allows for less autonomy than exhibited in #5.**

7. **Very High**: A highly intrusive parent's agenda clearly has precedence over the child's. Parent frequently intervenes inappropriately without cues from the child, and reacts to his/her own schedule rather than the child's needs. Frequent high level indicators (i.e. takes stimulus out of child's hands, no regard for what child wants to do, > #6) are pervasive throughout the session (i.e. parent appears to be doing task him/herself). Shows assertiveness to get the child to comply with their wishes which are not task related.

Parent Hostility: This scale reflects the parent's expression of anger, frustration, annoyance, discounting or rejecting of the child. A parent scoring high on this scale would clearly and openly reject the child, blame him or her for mistakes, and otherwise make explicit the message that they do not support the child emotionally. A parent scoring low on this scale may be either supportive or cold and show some expressions of anger, frustration, or annoyance, but they do not blame or reject the child. A rejecting parent may also show some Supportive Presence (and the inconsistency of their behavior would be revealed by these two scores). Given the low frequency and the clinical relevance of rejecting one's child during a videotaped session, any events which are clearly hostile should be weighted strongly in this score.

1. **Very low**: Parent shows no signs of anger, annoyance, frustration, or rejection. They may or may not be supportive, but they do not try to put down the child or avoid the child in rejecting ways. Passive or emotionally uninvolved parents would be included here if the parent did not reject the child or communicate hostility toward the child.

2. **Low**: Parent did one or two things that seemed to communicate a little hostility (i.e. anger, frustration, annoyance) toward the child. These messages were not overt but rather muted expressions toward the child (e.g., pulling away something with a jerk, putting hand on their hip to show exasperation, giving a negative look at the child briefly, having an exasperated tone of voice, parroting or mimicking the child in a negative fashion).

3. **Moderately low**: Signs of hostility again are very fleeting, but they occurred on several

occasions during the session, and at least one sign could be identified as clear and overt or an accumulating sense of unexpressed anger and avoidance toward the child was seen in the parent's behavior.

4. **Moderate**: Several instances of hostile or rejecting behaviors. Two or more of these events are reliably clear to observers, but expressions are brief and do not set the tone of parent's interactions immediately following the episodes.

5. **Moderately high**: Parent is overtly rejecting or hostile several times. Behaviors include overt and clearly communicated rejections of child and expressions of hostility or anger which appear intermittently through substantial periods of the session. This parent's behavior is more rejecting than not, either by the frequency of hostile behavior or by the potency by which rejection is communicated several times in the session.

6. **High**: Parent has frequent expressions of rejection and hostility directed toward the child. There is little or no effort to show warmth during substantial portions of the session, especially after parent becomes irritated with the child (i.e., parent may initially be warm and then rejects the child strongly). Parent is frankly and directly rejecting and hostile (e.g., telling child they will leave him/her behind if he/she does not do the task/play with the toy, using negative performance feedback but little positive feedback, blaming the child for incompetence on the tasks, and overtly refusing to recognize the child's success, e.g., "You couldn't have done it without me showing you!"). Any warmth seems superficial relative to the parent's distancing from the child, and rejection is used as a control technique against the child.

7.**Very high**: Parent shows characteristics of the previous scale point, but expressions of anger toward the child also are accompanied by strong, barely controlled emotions, suggesting the possibility of physical abuse and neglect of the child in some situations.

Parent Quality of Instruction: The important features of this rating are how well the parent structures the situation so that the child knows what the task objectives are and receives hints or corrections while solving the problems that are: (a) timely to his/her current focus, (b) paced at a rate that allows comprehension and use of each hint, (c) graded in logical steps that the child can understand, and (d) stated clearly without unnecessary digressions to unrelated phenomena or aspects of the task that might only confuse the child. The parent's approach suggests that they have some sort of plan for how their instructions will help the child. Yet, the parent is also flexible in their approach and uses alternative strategies or rephrases suggestions when a particular cue is not working, and they coordinate their suggestions to the effort that the child is making to solve the task. **See attached list for a more complete description of the components of quality instruction.**

1. Parent's instructions are uniformly of poor quality. They either are totally uninvolved or fail to structure the tasks so that the child understands what is required, and the parent gives clues that are of no help to the child's problem-solving efforts and appear to embody no effective plan of teaching.

2. Parent occasionally gives effective instruction. Parent may be able to structure the tasks so

that the child understands what to do and gives a few helpful hints to the child, but these are minimal compared to the ineffectiveness of most of their attempts or lack of attempts.

3. Parent effectively structures some portions of the tasks and provides good hints, but their assistance is inadequate for much of the session.

4. Parent provides adequate structure and instruction for the child to work on the tasks during much of the session, but overall their instruction is lacking in major ways at several points during the session. Alternatively, the parent may approach tasks in a way that is very structured but requires the child to attend primarily to their directives and allows little opportunity for the child to engage the tasks directly (i.e., the parent therefore does not have to coordinate their teaching to the child's efforts); **the result is that the child does not gain a sense of competence in performing the tasks.**

5. Parent generally provides instruction that is sufficient and appropriate, but there are some periods in which it is inadequate in amount or quality. Alternatively, the parent may approach tasks in a way that is very structured but requires the child to attend primarily to their directives and allows little opportunity for the child to engage the task directly (i.e., the parent therefore does not have to coordinate their teaching to the child's efforts); **yet, despite their directiveness, child still gains a sense of competence**.

6. Parent's instruction demonstrates **most** of the desirable features for this rating and in general the parent appears to provide good help throughout the session.

7. Parent demonstrates **almost all** the characteristics of effective instruction consistently throughout the session. The tasks are sufficiently structured so that the child understands the objectives and can attempt to solve the problems directly. Parent's assistance coordinated to the child's activity and needs for assistance.

Components of Quality of Instruction (indicative of high quality instruction)

-obtains child's attention

-explains the goal of the task in a developmentally appropriate manner

-provides instructions which are contingent upon the child's previous action (e.g., child picks up a block; parent then tells child to find one that looks the same)

-structures the task into logical steps

-has a range of strategies which they can apply in response to the child's actions

-changes strategies when the current one is not working and does so in a timely manner

-provides appropriate feedback (e.g., okay, that's it, try again)

-uses developmentally appropriate language that their child can understand

-times their instructions based on child's actions; does not present instructions too quickly (while child is still working on previous step) or too slowly (long after the child first shows indications of needing help)

-persists despite difficulties; does not give up

Parent Confidence: Degree to which the parent seems to believe that they can work successfully with the child in the situation and that the child will behave appropriately (whether this is more or less task oriented depends on parent's definition of the situation as a social or achievement oriented activity).

1. **Mostly unconfident**: Parent is uncertain in interactions with their child, being either unduly tentative, restricting, or appeasing (or a combination of these behaviors). Signs of a lack of confidence include doing the tasks for the child, appeasing the child by letting him do what he wants, overkill with strong reinforcement, showing clear signs of relief when the tasks go successfully, periodic checking with the experimenter to see if they are "doing it right", apologizing for behavior, and/or anxious laughter and giggling in response to their own or their child's efforts. There may be a sense that they are trying to deal with problem situations by using such tactics that distract from the issue rather than dealing with it directly. Alternatively, a parent may not show tentativeness, but be overly power assertive/ intrusive /grabby in their attempts to control her child's behavior.

2. **Somewhat unconfident**: Parent seems fairly confident that they can interact with the child in ways that will be satisfactory; however they do show some evidence of hesitancy or appeasement or anxiety in making requests of the child. A few signs of a lack of confidence (as described above in 1) may be present but are not pervasive and do not persist throughout the session.

3. **Mostly confident**: Parent is quite confident that their interactions with the child will proceed in an acceptable manner and that they need not take special precautions to ensure this. Parent seems relaxed about interacting with their child and seems to believe that they could deal adequately with any problems that might arise. Parent trusts in their instincts and skills as a parent (whether or not we as coders believe that they should!).

Parent Positive Affectivity: This scale is a measure of the frequency and intensity of the parent's expression of positive affect (PA). Positive affect includes facial, vocal, and bodily components. A high score on this scale may be obtained even if the parent expresses negative affect in the session.

1. **Low Parent PA**: Parent shows very little or no positive affect throughout entire session. Examples of low parent PA include lack of smiling, low energy, and subdued/ blunted/ flat affect.

2. **Moderate Parent PA**: Parent exhibits a few instances of positive affect (i.e. slight smiles). The majority of the PA displayed is of low intensity; however, there may be clear, but few, instances of moderate/high intensity PA (i.e. laughing, hugging the child). These elements are only minor elements of the session and are not expressed frequently or consistently.

3. **High Parent PA**: Parent clearly expresses PA at a level that is more intense and frequent than in #2. Parent appears energetic and engaged. Parent may display frequent low level instances of PA (i.e. contentment, smiling), but also displays several high level instances of PA.

Parent Negative Affectivity: This scale is a measure of the frequency and intensity of the parent's expression of negative affect (NA). Negative affect includes facial, vocal, and bodily components. A high score on this scale may be obtained even if the parent expresses positive affect in the session.

1. **Low Parent NA**: Parent shows very little or no negative affect throughout entire session. Examples of low parent NA include lack of irritability, frustration, or any other form of NA (i.e. anger, sadness, fear).

2. **Moderate Parent NA**: Parent exhibits a few instances of negative affect. The majority of the NA displayed is of low intensity (i.e. slightly negative tone of voice). These elements are only minor elements of the session and are not expressed frequently or consistently.

3. **High Parent NA**: Parent either expresses (1) consistent low levels of NA throughout session, or (2) at least two clear instances of NA that are of greater intensity than in #2 (i.e. shouts at child, grabs child)

Start time: **Stop time:** .

Coder Initials: **Date:** .

Behavior	Notes/Comments	Score
Parent Sensitivity/Responsiveness		
Parent Detachment		
Parent Supportive Presence		
Parent Intrusiveness		
Parent Hostility		
Parent Quality of Instruction **(code for puzzles with parent task only)**		
Parent Confidence		
Parent Positive Affectivity		
Parent Negative Affectivity		

Office of Research Ethics

The University of Western Ontario
Room 00045 Dental Sciences Building, London, ON, Canada N6A 5C1
Telephone: (519) 661-3036 Fax: (519) 850-2466 Email: ethics@uwo.ca
Website: www.uwo.ca/research/ethics

Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Dr. E.P. Hayden
Review Number: 15121S **Review Level:** Full Board
Review Date: May 2, 2008

Protocol Title: Gene-Environment Interplay and the Development of Child Temperament
Department and Institution: Psychology, University of Western Ontario
Sponsor: CANADIAN INSTITUTE OF HEALTH RESEARCH
Ethics Approval Date: June 11, 2008 **Expiry Date:** July 31, 2013
Documents Reviewed and Approved: UWO Protocol, Letter of Information and Consent (Parent Consent for Self), Letter of Information and Consent (Parent Consent for Child), Advertisement.

Documents Received for Information:

This is to notify you that The University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the study or consent form may be initiated without prior written approval from the NMREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the NMREB:

a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the NMREB.

Chair of NMREB: Dr. Jerry Paquette

Curriculum Vitae

Brigitte Hanna

Education:

2010-present	M.Sc. Candidate (Clinical Psychology), The University of Western Ontario
2006-2010	Bachelor of Science (Honours Psychology), Concordia University

Clinical Training

2012	Adult Assessment Practicum; Dr. G. Grace, LHSC (UH)
2012	Child Assessment Practicum; Dr. L. LaRose, CPRI

Academic Awards:

2011-2012	Ontario Graduate Scholarship ($15 000 for 1 year)
2010-2011	Social Sciences and Humanities Research Council of Canada (SSHRC) J. A. Bombardier Master's Award ($17 500 for 1 year)
2010	Concordia University Convocation Award: J. W. Bridges Medal in Psychology
2006-2010	Concordia University Dean's List
2008-2009	Concordia University New Millennium Student Contribution Scholarship ($1 000)
2007-2008	Concordia University Jack L. Cummings Scholarship ($1 500)
2006-2007	Concordia University Arts & Science Scholar Award

Teaching Experience:

2012	Graduate Teaching Assistant: Psychology 3220G-Child Psychopathology, The University of Western Ontario

Academic Lectures:

2012, March	Psychology 3320G. Duration: 3 hours. Lecture Title: *Eating Disorders*

Poster Presentations:

Hanna, B., Sheikh, H. I., Laptook, R. S., Kim, J., Hayden, E. P., Singh, S. M., & Klein, D. N. (2011, September). Associations between *DAT1*, parent-child interactions, and child negative emotionality. Poster presented at the 25th Annual meeting of the Society for Research in Psychopathology, Boston, MA.

Hanna, B., Ostiguy, C. S., & Ellenbogen, M. A. (2011, January). Attentional Disengagement from the Sad Face of a Romantic Partner Predicts Relationship Quality. Poster presented at the 12th Annual meeting of the Society for Personality and Social Psychology, San Antonio, TX.

Publications:

Hanna, B., Sheikh, H. I., Laptook, R. S., Kim, J., Hayden, E. P., Singh, S. M., & Klein, D. N. (under review). Child Dopamine Transporter Genotype and Parenting: Evidence for Evocative Gene-Environment Correlations. *Development and Psychopathology*.

Membership in Professional Societies:

American Psychological Association (student affiliate)
- Section 12, Division 3: Society for a Science of Clinical Psychology

Association for Psychological Science (student member, UWO campus representative)

Society of Personality and Social Psychology (student member)

Volunteer Service:

2010-2011	The University of Western Ontario Society of Graduate Students (SOGS), Psychology Councilor

Positions of Relevance:

2009-2010	Project Coordinator. Personality, Health, and Aging Laboratory. Concordia University.
2009-2010	Undergraduate Research Assistant. Social Milieu of the Individual Laboratory. Concordia University.
2008-2010	Undergraduate Research Assistant; Project Coordinator. Stress and Developmental Psychopathology Laboratory. Concordia University.
2008-2009	Undergraduate Research Assistant. Pediatric Public Health Psychology Laboratory. Concordia University.